IRON TRADE REVIEW AND WESTERN MACHINIST

A JOURNAL OF MANUFACTURES, HARDWARE, METALLURGY AND INVENTION.

VOLUME XIX. CLEVELAND, O., APRIL 17, 1886. NUMBER 16.

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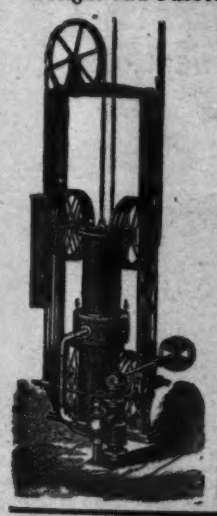

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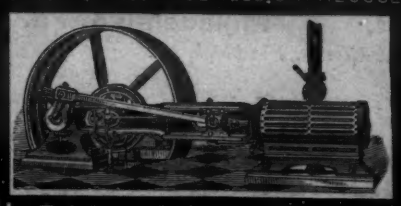

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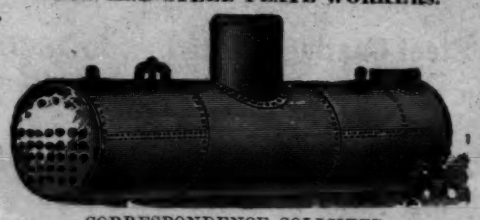

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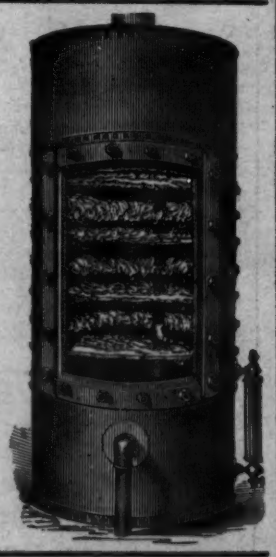

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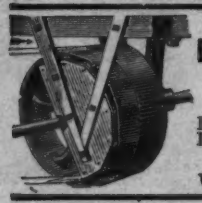

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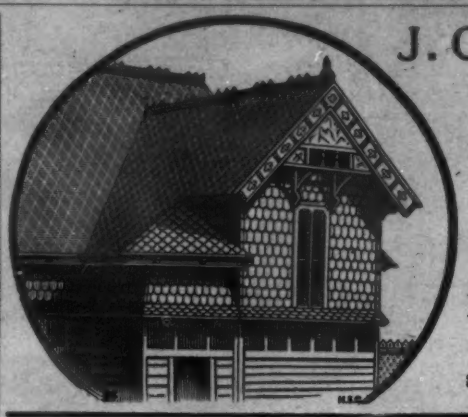

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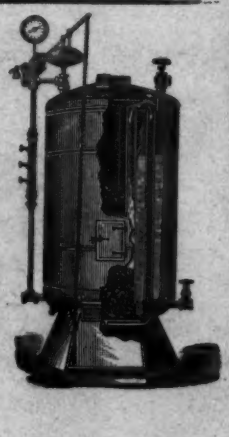

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Pat. August 11, 1885.

This Shifter is to change the Belt on Upper Cone Pulleys, from one speed to the other; is now in use in many of the largest machine shops in the United States and is claimed to be indispensable.

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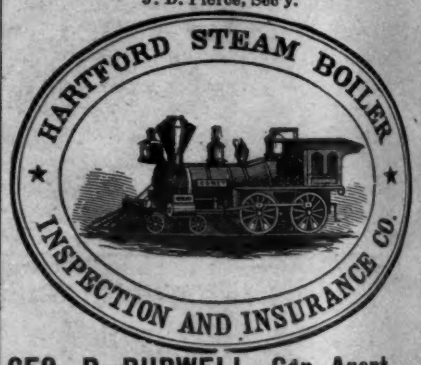

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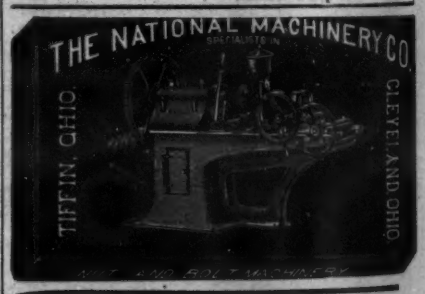

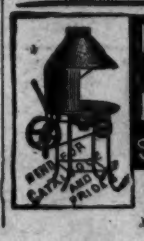

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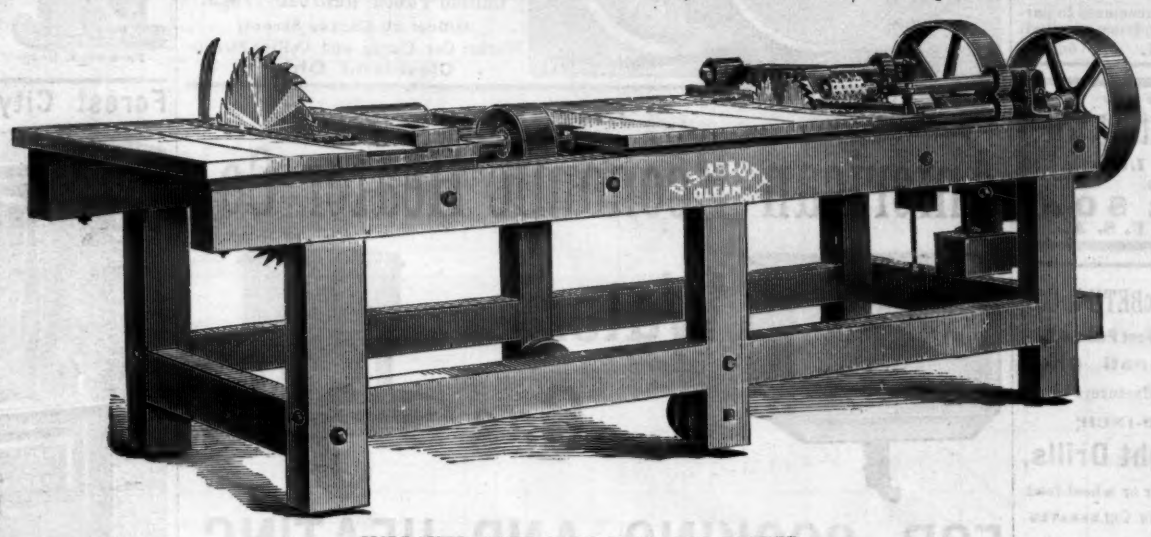
IRON TRADE REVIEW AND WESTERN MACHINIST

VOLUME XIX. CLEVELAND, O., APRIL 17, 1886. NUMBER 16.

NEW MACHINERY.

IMPROVED GANG LATH MILL AND BOLTER.

The necessity for a first class lath mill, at a moderate price, was the incentive to the invention herewith illustrated. In order to keep the price as low as possible, a stout hardwood frame, thoroughly bolted, was adopted, answering all requirements. The saw mandrels are of heavy steel, with pulleys for 8″ belt. The pulleys are turned inside as well as out, to insure perfect balance for high speed. The lath saws are 12″ in diameter; bolter saw 22″. The stock is fed to the lath saws by four feed rollers, two in front and two in rear of saws. All are geared together in a very simple and effective manner and are driven from the saw mandrel by a 4″ belt made to order for this machine. These feed rollers are an improvement in this machine, being of hardened points or teeth which is more positive and will not wear smooth in a short time like the common fluted rollers. The bolter has one of these improved feed rollers, which carries the slab to the saw without taxing the strength of the operator. This feed is driven direct from the line shaft so no countershaft for feed is required and all short belts dispensed with. The feed rollers are set so that the material is pressed toward the guide, which insures even thickness of lath. The lath saws are covered with a housing to protect the operator. Saws can be taken off for filing and replaced with convenience. The machine occupies a floor space of about 3¼x9½′, and weighs about 1,000 lbs. It is mounted on wheels for shipment. Manufactured by D. S. Abbott, Olean, N. Y.



IMPROVED GANG LATH MILL AND BOLTER.

BASIC STEEL IN THE SOUTH.

General E. Burd Grubb, President of the Lynchburg Iron Company, of Virginia, in his address before the Ways and Means Committe, on the 6th instant, in opposition to the Morrison tariff bill, made the following prediction: "It has been stated that there are no ores in the South suitable for the manufacture of Bessemer steel. I desire most emphatically to contradict this. There are many, very many, such ores in Virginia, and many thousands of tons of pure Bessemer ores have been mined in Virginia and sent to the furnaces of the North since 1878. This industry was entirely crushed in by the importation of foreign ore, which began in 1879, increased in 1880, and has continued ever since. But let us suppose, for the sake of argument, that the ores of the South are not suitable for Bessemer steel, and, as a general thing, they are not. I do here make the prediction that within the next ten years there will be successful steel plants in every iron-making State of the South, and that Southern basic steel made from Southern ores without any admixtures of the products of foreign countries will hold its own and fight its way in the markets of America with the finest Bessemer steel ever made." General Grubb's address was listened to by the Committee with marked interest.

IRON ORES IN THE UNITED STATES.

From the report of the select committee on Ordnance and War Ships (1886) we quote as follows:

In proceeding to ascertain the capacity of the steel-producing work of the United States, the locations and characteristics of the iron ores of the country claim a brief prelimiary consideration.

The ores found on the Pacific coast have received but little attention, but some of them, abundant in quantity, are excellently adapted to steel making, containing slight quantities of phosphorus. Most of the deposits are on well-timbered land, and manufacturers in California declare that nothing is lacking but a demand for the product.

Excellent steel-making ores are found in Colorado.

The celebrated Marquette district, in Michigan, is the most productive in the country. The extent, richness, and purity of the hematite and magnetic ores of this region are remarkable. Fourteen analyses of ores from one of the most noted mines show that they average 68.48 per cent. of metallic iron.

Next to the Marquette district in productiveness is the Menominee range district, in Michigan and Wisconsin. Its ores average from 64 to 67 per cent. of metallic iron.

During the 28 years ending in 1884 the total production of iron ore on the southern shore of Lake Superior amounted to 25,313,244 tons.

Ores of vast extent and uniformly good quality have lately been developed in the Lake Vermilion district, in Saint Louis County, Minnesota.

There are four distinct iron ore fields in Missouri, whose products exhibit from 59 to 68 per cent. of iron.

The immense Cornwall ore beds of Lebanon County, Pennsylvania, appear to be no nearer exhaustion than when they were opened 150 years ago.

The Salisbury iron region of Litchfield County, Connecticut, and neighboring counties in New York and Massachusets, supplies valuable brown hematite ores as freely as in the last century.

The State of New York is very rich in ore along its eastern border on both banks of the Hudson and in the vicinity of Lake Champlain.

Northern New Jersey has a number of mines, chiefly of magnetic ore, furnishing an iron suitable for forge or foundry purposes, with some well adapted to the manufacture of Bessemer steel.

Ohio has many varieties of iron, but Ohio, like Pennsylvania, makes more iron from ores mined outside its borders than from its own ores.

West Virginia, Kentucky, Tennessee, Georgia, and Alabama contain valuable and extensive deposits, some of which have furnished iron of celebrated excellence. Under the new and rapidly improving processes many of these ores can be converted into steel.

Iron ore is common in Virginia, some of very superior quality.

North Carolina has many deposits, one of which, in Mitchell County, has acknowledged superior adaptability to the manufacture of steel.

The pig iron produced in the United States in 1884 amounted to 4,067,868 gross tons, which, by trade estimates, required 7,785,940 tons of ore. Deducting the importations, 487,820 tons, we have 7,298,129 as the home production of the year that was smelted.

Nearly one-third of the ore is suitable for Bessemer steel, according to the arbitrary standard assumed, which excludes such as contain more than one-tenth of 1 per cent. of phosphorus.

CANADA'S BOUNTY ON PIG IRON.

We quote as follows from a valuable treatise, just issued, on "The Manufacture, Consumption and Production of Iron and Coal in Canada," by James Herbert Bartlett, M. E., Montreal:

A considerable amount of error is often noticed in statements regarding a bounty, granted by the Dominion Government on the manufacture of pig iron. The actual facts of the case are as follows: Beginning in 1867 with Confederation, pig iron was on the free list till 1880, when a specific duty of $2 per ton of 2,000 lbs. was imposed, which regulation is still in force.

By Act 46 Vic., chap 14, authority was given for the payment of a bounty on pig iron, manufactured in Canada, from Canadian ore. The Act provides that pig iron so manufactured, shall after the 1st of July, 1883, receive a bounty per ton of 2,000 lbs., of one dollar and fifty cents, up to the 30th June, 1886, and one dollar from that date up to the 30th June, 1889.

The debit and credit of the account will now be examined.

The Government received for duty in the fiscal years ending June 30th:

Cr.	1880	on	23,159 tons	@ $2.00	.....	$46,316.20
	1881	on	43,630 "	"	.....	87,263.44
	1882	on	63,431 "	"	.....	126,865.26
	1883	on	77,493 "	"	.....	154,987.81
	1884	on	52,184 "	"	.....	104,374.74
			Total		.....	$519,807.45
And paid in bounty in						
Dr.	1884	on	29,389 tons	@ $1.50	.....	44,083.50
Balance to credit of the pig iron account					.....	$465,723.95

Or, taking the year 1884 alone, after deducting the amount paid in bounty, there remains a balance from the amount received for duty, of $60,291.24.

In the April number of *Lippincott's Magazine* a novel series of articles is commenced under the general heading of "Our Experience Meetings," in which a sort of public confessional will be provided for leading authors, actors, artists, politicians, business men, etc., who feel autobiographically disposed.

"Strikes, Lockouts, and Arbitrations" is the title of a timely and important article in the April *Century* by George May Powell. It aims to be an unbiased study of the relations of capital and labor, and of the methods of settling differences.

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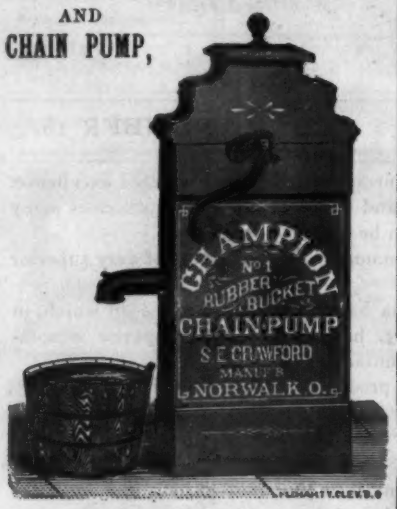

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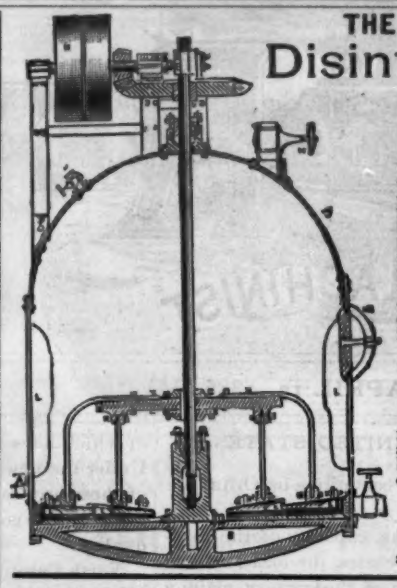
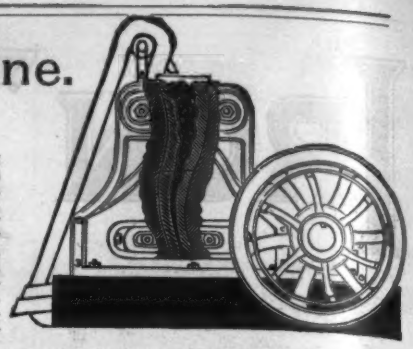
Cleveland, Chicago,
Watertown, N. Y



THE MEECH GOLD AND SILVER ORE
Disintegrating Machine.
The Only Method for Preparing the Ore for Amalgamation.



Disintegrating, Decomposing and Desulphurizing the ore under a HIGH TEMPERATURE and PRESSURE OF STEAM HEAT, with chemical action and attrition, dissolves and breaks up the chemical combination in the ores, individualizing, cleansing and separating the atoms of metal from the gangue, perfectly freeing them for amalgamation in combination with the MEECH AMALGAMATION MACHINE and process, (being the greatest combination of Amalgamation known), will successfully extract 90 per cent. of the metal from rebellious ores, such as Sulphurets, Sulphates, Sulphides, Chlorides, Bromides, Oxides, Tellurides, &c.
We desire business correspondence in every mining district in the United States.

The Meech Crusher and Pulverizer.
This Machine will **CRUSH AND PULVERIZE GOLD AND SILVER ORES** to 20, 40 and 60 mesh fine, and from 20, 40 and 60 tons per day. The PRINCIPLES of this machine, making it superior to all others, are the peculiar concave and convex shape of the jaws, with concave and convex projections, which breaks, crumbles, stamps and pulverizes the ore with less power, wear and tear, than any other machine. Manufactured by
MEECH & CO., Cleveland, O.
We will contract to erect the **Meech Plant of Mining machinery** for successfully treating all grades of gold and silver ore. 02

CLEVELAND WHEEL & FOUNDRY WORKS.

MAHER & BRAYTON, Proprietors,
Manufacturers of
Car, Engine, Truck and Tender Wheels.
RAILROAD, ROLLING MILL and Machinery Castings.
and Street Railroad Wheels and Turnouts.
ALSO
Chilled-Faced Railroad Frogs.
Office: 20 Carter Street,
Works: Cor. Carter and Collins Streets.
Cleveland, Ohio. 32

COMMON SENSE ENGINES.

From 2 to 10 Horse power; Boiler wrought iron.

From 6 to 25 H. P.

Simple, durable, economical, perfect, fully guaranteed, boilers all wrought iron. Send for illustrated Catalogue. Agents wanted everywhere

Best **CORN MILL** in the World for plantation and farm purposes.

Stationary Engines from, to 100 Horse Power
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FOR COOKING AND HEATING.

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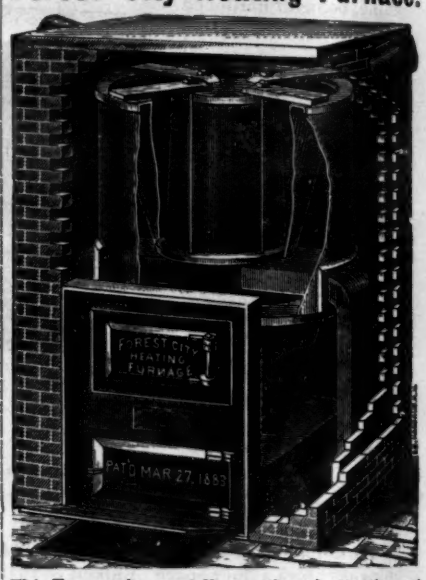
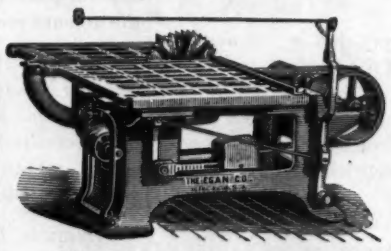
Forest City Heating Furnace.



This Furnace is especially worthy of attention and examination on account of its originality, being
Based upon a New Plan.
It is so constructed that it is impossible for it to smoke or leak gas; and has a dust damper so arranged that no dust can arise when dumping or shaking the grate; which every housewife must admit to be an item of great importance. Another great feature is its great economy in the consumption of fuel; and yet it is the most powerful heater in the market, and has never failed to give perfect satisfaction. Read the following and see what a user says of its merits:
Cleveland, O., June 11, 1883.
Mr. Tylee, proprietor "Forest City Furnace."
Dear Sir,—It affords me pleasure to state that the hot air furnace placed in my house last fall has proved satisfactory, heating the house thoroughly in the coldest weather. Respectfully, Yours,
A. TILTON, 760 Walton Ave.
For Circulars and prices address **F. TYLEE,**
14 **41 Viaduct, CLEVELAND, O.**

Wood Working Machinery
FOR
PLANING MILLS, FURNITURE AND CHAIR FACTORIES,
CAR AND AGRICULTURAL WORKS,
Carriage, Wagon & Buggy Shops,
AND GENERAL WOOD WORKERS.



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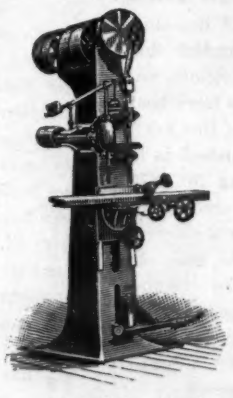
A FULL LINE OF LATEST AND MOST IMPROVED CONSTRUCTION.



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The Egan Company,
251 to 271 WEST FRONT STREET,
Successors to The Cordesman & Egan Co.
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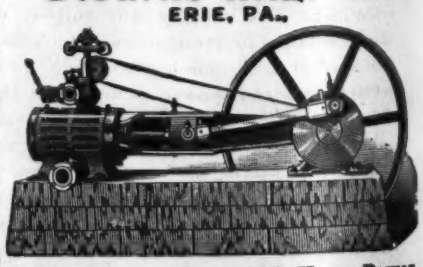
THOS. P. EGAN, Pres't. EDWIN RUTHVEN, Sec'y. FREDERICK DANNER SUPT.

Stearns Mfg. Co.
ERIE, PA.

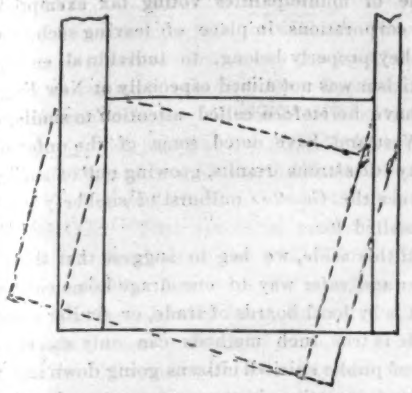


Engines from 15 to 400 Horse Power
Boilers of Steel and Iron
applied to the Trade or user. Send for Catalogue
Saw Mill and General Machinery.
8 **WORKS AT ERIE, PA.**

THE DETERIORATION OF BOILERS.

In an article in our last issue on this subject, we referred to cases where long locomotive fire-boxes had widened ⅝″ in service, this bulging affecting both the mud-ring and the sides of the box. Mr. W. Stroudley, of the London & Brighton Railway, states: "We make our mud-rings 3″ thick by 3½″ vertical depth, the fire-box and outer shell being double riveted through the ring. The object of having the ring so deep is to prevent its turning by the depressing influence of the fire-box, and so causing grooving in the outer shell, as happens when the ring is shallow."

The effect produced by the downward expansion of the fire-box side sheet is illustrated in the accompanying cut, the amount of expansion being exaggerated in



order to make the effect clear. The full lines show the mud-ring and fire-box sheets when cold, and the dotted lines show the alteration produced by the expansion of the inside fire-box. It will be seen that the outer shell hinges on the point A, bending the plate. A less severe bending action takes place at B, and both these tend to produce grooving.

The deformation of the mud-ring may be thus accounted for, and we can only suppose that the mud-ring once twisted out of shape, the plates composing the fire-box shell yield to the tendency to approximate to the spherical form natural to all hollow bodies under an internal pressure.—[Railroad Gazette.

CONCERNING BELTING.

Among all the articles used in the various factories in all lines of trade, there is probably not one that creates more general interest or performs more important duties than that of belting. No factory can be carried on without its use, and it is of the greatest importance in every case that the most perfect form of belting should be secured. It is only by using the best belting that the machinery of the factory can be utilized to its fullest capacity; and if inferior belting is employed it immediately causes a considerable loss of power and time, and entails a series of evils that must necessarily result in a financial loss. Considerations of this importance have stimulated those in the business to produce a belting that should fulfill all the requirements, and that should possess none of the disadvantages that have been found in the ordinary oak-tanned belting. This most desirable result has been definitely accomplished by the Shultz process.

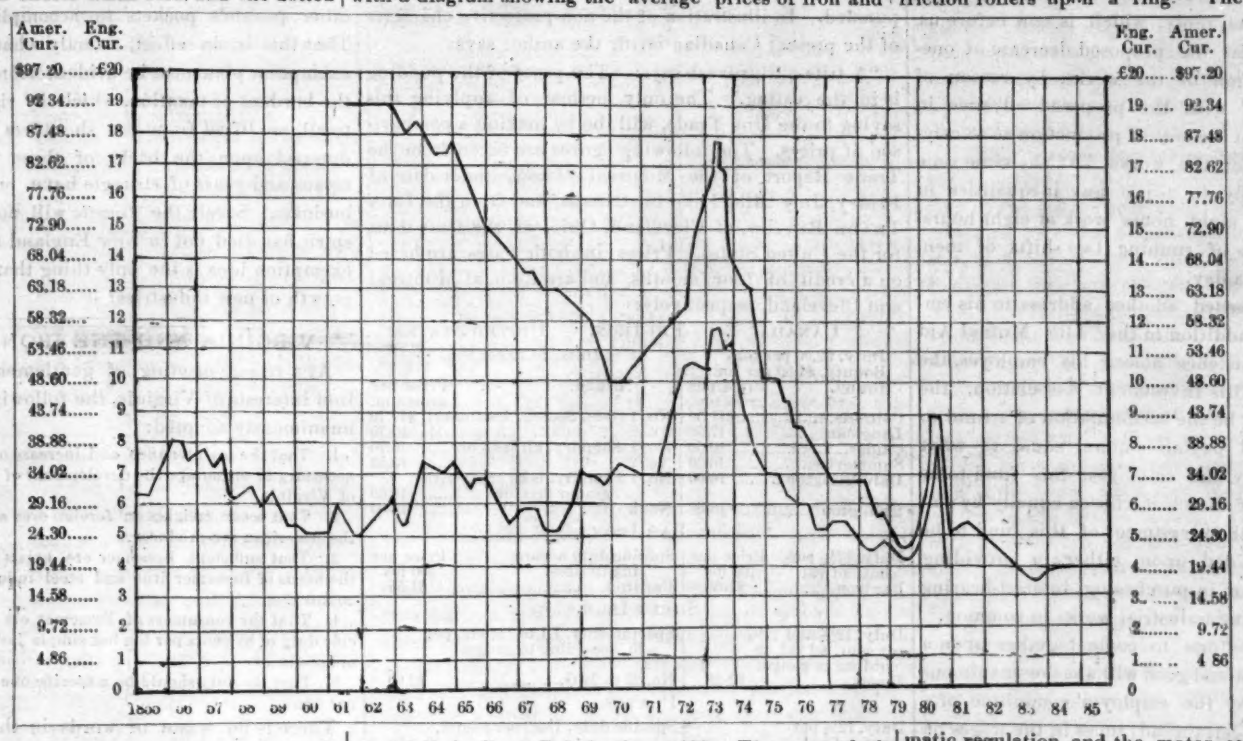
The belt that will transmit the most power, with the least strain on machinery, is the cheapest, and likewise the best. The leather in this belting is a combination of tanned leather and rawhide, having the strength of rawhide and the good qualities of oak-tanned leather, which, being neither tanned leather nor rawhide, is called "fulled leather;" for after the hide is tanned on the surfaces it is converted into leather by machinery. A belt thus made, it is claimed, can be run slacker, thus preventing heated journals, and wear and tear on machinery, and at the same time transmits more power. Any one who has handled buckskin (which is fulled oil-dressed deer skin) knows how pliable it is, but how easily affected by water. This last objection is entirely remedied in the Shultz leather, by the oak-tanned surfaces and the water-proof stuffing, used in its manufacture; and the result is a leather combining imperviousness to climatic influences and complete pliability, and thus the two main objections to oak-tanned leather, viz.: stiffness and danger of being over-tanned, are entirely obviated. The leather is peculiarly soft and pliable, and upon use becomes very smooth on the side next the pulley, thus hugging the pulley better and preventing lost motion.

There are many places where single belts are not adequate to the work required, and when parties do not care to incur the expense of a full double belt, a light double is recommended. These belts are made of as good leather as the heavy double—only of lighter weight. A belt is no stronger than it is in its weakest place, which is the lap. In the "light double" the solid leather goes over the laps, same as in heavy double, which makes a belt of uniform strength all through, and the points of the laps running backwards, cannot come up, as in single.

This belting is manufactured by the Shultz Belting Co., whose agents for Cleveland and vicinity are Messrs. Parkin & Bosworth, Nos. 9 & 11 South Water street.

IRON AND STEEL RAIL PRICES.

From an English contemporary we reproduce herewith a diagram showing the average prices of iron and steel rails in Great Britain since 1855. The upper dark lines represent steel, the lower line iron. Set opposite the scale of prices on the sides, are the corresponding amounts in American currency. The several years are indicated on the bottom line.



Casting a Big Cannon.

At the South Boston (Mass.) Iron Foundry April 5, the fifth and last of the large rifled cannon ordered by the Government was successfully cast under the supervision of Capt. Ligle and Lieut. Borup, of the army, and Commander Lyon, of the navy. One of the five guns has a 10″ bore and the others are 12″ rifles. The gun made was a 12″ one, and this was the fourth time it was cast. Three times the casting proved a failure on account of unforseen accidents, but at every stage of the proceedings the work was carefully guarded and accidents avoided. Three immense furnaces were used in the melting of about 100 tons of iron, or about 35 tons in each furnace. The fires were made the evening before at 9 o'clock, and it was expected that the casting would be begun at 1 P. M. April 5, but the iron was in condition to run at 12:30. The melting was completed at 7 A. M., and the iron was kept in fusion until ready to run. This process of boiling relieves the gun iron of a percentage of its carbon, rendering it ductile and free of all impurities, and puts it in such a condition that when it cools, it will be perfectly solid without even the minutest bubble in it. The gun-pit had been carefully prepared for the reception of the iron, and the core which hung down in the center of the pit was one of the stoutest and best made ever produced in the country. At the end of 22 minutes the metal had filled the pit. Then the holes of the furnaces were plugged up, the gutters that conveyed the metal from the furnaces to the gun cradle were soon emptied, and the first shape of the 54-ton rifled gun was completed.

THE AMHERST HYDRAULIC MOTOR.

The illustration herewith shown is that of a motor which has been designed to fill all the requisites of an economical and perfect working hydraulic engine, and the number of uses for such a machine, when attached to the water supply pipes of our towns and cities, can be hardly suggested. It consists of eight cylinders radiating from a common center, with pistons and rods, as shown in the cut. By means of a single rotary valve the water is admitted constantly and successively to

four of the cylinders. These pistons are single acting, one cylinder being dropped off behind as one is gained in the direction of rotation. The pistons act through friction rollers upon a ring. The pressure being thus upon four of these pistons, while the other cylinders are open to the exhaust, the ring is forced forward and the power communicated directly to the crank, which acts with a maximum efficiency on the driving pulley. The water is admitted to and discharged from all of the cylinders by the same valve, which is in a single casting, simple, strong, and cannot get out of order. This valve as well as other parts liable to corrosion from contact with water, is cast in composition. Simple and efficient means are provided for automatic regulation, and the motor can be started, stopped or reversed by a child. The advantages claimed for this motor are the following:

1. It is a piston motor; not a single drop of water passes through without contributing its power. 2. It is furnished with durable, tight and almost frictionless packings. 3. It has no dead centres, since the power is constantly applied at right angles to the crank. 4. Its action is strong and perfectly uniform, without jar or noise, a most important advantage over other water motors. 5. It can be instantly reversed and runs equally well in either direction. 6. It gives the largest possible per cent. of power for the water used. 7. It is simple in its construction, and accessible in all its parts. 8. It is a finished machine in every respect, thoroughly made and every part can be duplicated. 9. It can be run with steam or compressed air where desired. 10. It is the best motor yet devised for blowing church organs. 11. It will start in any position with a full load.

For further particulars address the Exhaust Ventilator Co., 116 Dearborn street, Chicago, Ill.

The Metals in Ship-building.

Some idea of the large amount of iron and copper, etc., which enters into the construction of a ship may be formed by reading the following paragraph: The old war ship Niagara, recently broken up at the Charleston Navy Yard, yields 171,226 pounds of copper, 61,369 pounds of composition, 486 pounds of wrought iron, 646 pounds of cast iron, and 18,000 pounds of lead.

IRON TRADE REVIEW
AND WESTERN MACHINIST

A JOURNAL OF
MANUFACTURES, HARDWARE, METALLURGY, INVENTION
PUBLISHED WEEKLY BY
DAY & CARTER,
NOS. 16 AND 17, COAL AND IRON EXCHANGE,
130 *Water Street, Cleveland, O.*

WILSON M. DAY, EDITOR. FRANK N. CARTER, BUSINESS MANAGER.

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Western Machinist (monthly) 60c. a year.
Advertising Rates Furnished on Application.

ENTERED AT THE POST OFFICE AT CLEVELAND, O., AS SECOND CLASS MATTER.

CLEVELAND, O., APRIL 17, 1886.

PRACTICAL WISDOM IN WAGE MATTERS.

About the 1st of April the employes of the Edw. P. Allis & Co. Reliance Works, Milwaukee, Wis., presented a petition asking that wages be advanced 25 per cent. and that eight hours constitute a day's labor. In a well-tempered and judicious reply, which is now before us, Mr. Allis showed that the proposed decrease of one-fourth of the production of the works, by reason of shorter hours, coupled with the proposed advance in wages, would so add to the cost of production as to compel the closing down of the works. At the same time he held himself ready to adjust any inequalities in wages and to agree to eight hours' work at eight hours' pay, with the privilege of running two shifts of men, making sixteen hours a day.

April 9, Mr. Allis issued another address to his employes suggesting, in addition to the "Allis Mutual Aid Society" already in existence among his employes, the organization of the "Allis Investment Association," the object of which would be the accumulation of a fund to which Mr. Allis would pay an amount equal to what should be paid in by the employes; this fund to be managed by a board of directors, chosen equally by employes and employer; the investment of this fund to be made in any way decided upon, either in providing homes for members, or in purchasing interest-bearing securities, or in operating industrial works in common.

The result of these efforts to come together upon a basis of mutual interest and good will was the unanimous adoption, April 13, by the employes' committee, of a resolution, accepting certain advances in the wages of day laborers and the equalization of wages paid certain skilled employes, and the continuance of the ten-hour plan until November 1 ensuing, with the option then of adopting the eight-hour plan and eight-hour pay, which arrangement, if adopted, is to continue until May 1, 1887, with the assurance, in the meantime, that the rate of wages shall be equal to that paid by other establishments of the same kind.

We commend the practical wisdom of both parties in dealing with the question at issue. Would that more differences could be as amicably and satisfactorily settled.

CANADA'S IRON POSITION.

Mr. James Herbert Bartlett, M. E., of Montreal, deserves great credit for his researches into the question of iron-making in Canada. His historical paper on the subject, read at the Halifax meeting of the American Institute of Mining Engineers, was noticed at length in these columns. Now we have, as a further elaboration of the subject, an interesting and exhaustive work of 167 large pages, entitled "The Manufacture, Consumption and Production of Iron, Steel, and Coal, in the Dominion of Canada, with Some Notes on the Manufacture of Iron, and on the Iron Trade, in Other Countries."

That there is need of the writing of such a work is evident from the widespread impression that only disaster can follow all attempts to establish iron manufacture in Canada. Indeed, as an impartial historian, Mr. Bartlett is constrained to admit that "not only does the position of the few iron manufacturers we have steadily get worse, in fact they can hardly be said to exist, but from its being the most important manufacture in the late Province of Canada, fifty to seventy-five years ago, when iron and stoves were articles of export, it has fallen off to such a point that a sort of hopeless feeling has been engendered, and a great many people believe that we have not the facilities to enable us to manufacture iron in Canada." As a corollary to this disheartening statement is the assertion that "there is no other country in the world, with ten thousand miles of railway, that does not make its own rails." Conversely, he holds that "there are few, if any, countries in the world which have such natural advantages for the manufacture of iron as we possess in Canada."

A study of the 56 pages of statistics shows that the home demand for iron and steel manufactures is very large, and is growing steadily. Imports of pig iron for the last ten years range from 15,000 to 75,000 tons per annum; of bars and rods, from 28,000 to 45,000 tons; of steel rails from 23,000 to 122,000 tons (in 1883), and so on; the total value (including duty) of all iron and steel products imported in 1884 being $16,961,661.84. Thus it is not for want of a large demand that iron manufacture has failed of development in Canada.

What Mr. Bartlett's whole showing tends to establish is the need of a genuine protective system in the Dominion, in place of the weak and oscillating policy now pursued. In illustration of the non-protective character of the present Canadian tariff, the author says:

"A trite old proverb says: 'The proof of the pudding is in the eating.' The only method of applying this saying to the Iron Trade, will be by making a comparison of prices. The following figures are taken from the Trade Report of the Montreal *Gazette*, under date of Friday, July 24th, 1885, for Canada, and from the IRON TRADE REVIEW, of Cleveland, Ohio, of the same date, for the United States. Prices in both cases are based on a credit of four months, and are f.o.b. at Montreal and Cleveland, respectively:

PIG IRON.

CANADA. Duty, $2.00 per ton. Bounty, $1.50 per ton. Brand.	Price per gross ton.	UNITED STATES. Duty, $6.72 per ton. Brand.	Price per gross ton.
Coltness	$17.50	No. 1 Ohio, Scotch, (Softener).	$17.70
Langloan	17.50	No. 2 " "	16.70
Calder	16.50	No. 1 Foundry, all lake ore	16.70
Summerlee	16.50	No. 2 " "	15.50
Dalwellington	16.00	No. 1 Foundry, lake ores, with cinder mixture	16.00
Eglington	15.00	No. 2 " " "	15.00

BAR IRON.

Duty, 17½ per cent. ad val.	Price per 100 lbs.	Specific duty according to sizes.	Price per 100 lbs.
Bar iron	$1.65	Bar iron	$1.55

SHEET IRON.

Duty, 12½ and 17½ per cent. ad val. according to gauge.		Specific duty, 1.1 to 1½ cts. per lb. according to gauge.	
Sheets	$2.25	No. 22 to 24 G	$2.90

PLATES.

Duty, 12½ per cent. ad val.		Specific duty, 1¼c. per pound.	
Plates	$2.25@$2.50	C No. 1 boiler plate	$2.25

CUT NAILS PER KEG OF 100 LBS.

Specific duty, ½ ct. per lb., and 10 per cent. ad valorem.		Specific duty, 1¼c. per pound.	
10 dy. to 60 dy., hot cut, per keg	$2.40	10 dy. to 60 dy. nails. Prices weak at	$2.15

From the above Mr. Bartlett very wisely concludes that Canadians are constantly draining themselves of large amounts of money simply to pay for what they ought to make within their own borders, and that they do not even possess compensation and consolation in being able to purchase their iron any cheaper than it costs in the United States, "where the policy opposite to our own, and surely the more enlightened one, prevails."

THE MISTAKES OF MUNICIPALITIES.

We must congratulate the editor of the Boston *Manufacturers' Gazette*, upon his able, intelligent and impartial treatment of a simple question of municipal economy. His comments, elsewhere reprinted, on a recent article in the IRON TRADE REVIEW criticising the practice of municipalities voting to exempt various business enterprises from taxation, indicate a breadth of view and a knowledge of men and localities west of the Alleghenies on a par with popular ideas regarding the whereabouts of the "Lost Tribes" or the peculiarities of the inhabitants of Terre del Fuego. Here are a few choice phrases descriptive (from the Boston point of view) of Ohio and Western manufacturers and business men:

"These Western people."

"Accustomed to the vastness of prairie life."

"The wild West."

"Ohio folk."

"These people."

"Long hair is not now worn out West."

"Buckskin leggings are not the habiliments of the Buckeye sons."

"We supply her boundless prairies with farming tools and household utensils, and own the roads that carry them out."

All of this about what? Simply a protest against the principle of municipalities voting tax exemptions to favored corporations in place of leaving such matters where they properly belong, to individual enterprise. Our criticism was not aimed especially at New England, for we have heretofore called attention to similar cases in the West and have noted some of the unfortunate, not to say disastrous results, growing out of such practices; hence the *Gazette's* outburst of snobbery is all the more uncalled for.

But all this aside, we beg to suggest that there is a far better and safer way to encourage home enterprise, and that is by local boards of trade, or similar organizations. It is true, such methods can only succeed by a number of public spirited citizens going down into their pockets and investing in these new enterpri es; but we submit that this is infinitely better than going down into other people's pockets to accomplish the same end. That this is, in effect, exactly what is done under the exemption plan must be evident from the fact that by it the burdens of taxation, which by rights belong equally to all, are lifted from the shoulders of newcomers and dumped upon the backs of those who by legitimate means and years of struggle have built up a permanent business. Surely the *Gazette* will not claim that public spirit has died out in New England towns, and that the exemption idea is the only thing that will stimulate the growth of new industries?

VIRGINIA AND THE IRON ORE DUTY.

At a recent meeting of gentlemen representing the iron interests of Virginia, the following resolutions were unanimously adopted:

1. That the maintenance and increase of the tariff on ores is necessary to encourage the development of the mineral resources of Virginia.
2. That ocean freights on foreign ores afford no protection to the American ore-producer.
3. That sufficient Bessemer ore exists in this State to meet the needs of Bessemer iron and steel industries throughout the country.
4. That the consumers of Bessemer ore deem a minimum specific duty of 85 cents per ton but simple justice to the American ore producer
5. That the duty should be a specific one of not less than $1.50 per ton.

There is no waste of words in this; and probably it was in partial response to similar expressions from all over the South, that Mr. Morrison has omitted iron ore from the free list in the new draft of his tariff bill.

MISQUOTING MR. ROACH.

The Philadelphia *Inquirer*, in an article favoring free ships, having remarked that, "according to the statement of Mr. Roach, who knows as much of the matter as any one, an American merchant must pay 40 per cent. more to build a steamship here than in England," the New York *Tribune* expresses itself as willing to go bail that Mr. Roach said nothing of the kind. If the *Tribune* wishes another name on the bond, we are willing to see that it is forthcoming.

What Mr. Roach did say was contained in a letter to the editor of the IRON TRADE REVIEW, under date of January 5, 1886, as follows: "The difference between "the first cost of a ship on the Delaware and on the "Clyde never would prevent us from competing with "other countries. A ship on the water is very much "like a factory on the land. You may give a man a "factory, but if you compel him to pay 40 per cent. "more for his labor than another who pays a good price "for his factory, how long do you suppose it will be "before the man who gets his factory free will be compelled to close it? * * * So I conclude "that the difference in the first cost of our ships is not "the reason why we do not build for the foreign trade.

"While England, as a great maritime nation, has a "policy which holds out inducements to capitalists, we "have none."

It is, then, the higher range of labor, taxes, capital, etc., incurred in running a ship which militates against the growth of our merchant marine, and not the increased cost of construction, as claimed by the advocates of free materials. The actual cost of construction is not to exceed 12 per cent. higher in the United States than in England—surely not a material difference. The real difference is in the cost of running the ship after it is built, which amounts, as Mr. Roach claims, to 40 per cent.

MARVELOUS changes are occasionally wrought in American blast furnace practice by the faithful compositor and the unwary proof-reader. Recently our contemporary, the *Iron Age*, contained an item in which it was solemnly asserted that the hot-blast stoves just put in at the Jefferson Iron Works furnace at Steubenville, O., were "*each* 17 *inches in diameter and* 65 *inches high, and work admirably.*" That stoves of such diminutive pattern should work admirably on a 14½x58-foot furnace is, indeed, wonderful. Nor does the wonder cease when we add that the identical item, duly credited but with the self-same absurd statement undetected, found its way into our columns, passing safely and successively under the scrutiny of the editorial shears, the censorship of the intelligent compositor and the final revision of the accomplished proof-reader. It deserves the prominence herewith given it for the persistency with which it sought to perpetuate a very self-evident blunder.

THERE have been various rumors afloat to the effect that the Western Steel Company were about to abandon their enterprise at St. Louis. We have what we consider reliable information that the works will start up in about two weeks. A contract has been closed with Gordon, Strobel & Laureau, for three of the Gordon-Whitwell-Cowper stoves. One furnace will be raised to 75′ with ring coolers and modern details. It is expected that with these changes a larger output will be had with an average fuel consumption of not over 2,000 lbs. to ton of iron.

WE extend heartiest congratulations to Mr. Joseph D. Weeks upon his return to the editorship of the *American Manufacturer*, of Pittsburgh, after a number of years' efficient service as the Western representative of the *Iron Age*. Mr. Weeks possesses all of the qualifications requisite to the discharge of his multifarious duties, and we shall look for rapidly increasing prosperity on the part of the *Manufacturer*, as the result of his labors.

CHICAGO AND JOLIET LOOK AT THIS.

The month of March has placed the Pennsylvania Steel Works at the head of the column as the largest producing steel plant in the United States, and the record of the Bessemer mill for the month has not been equaled in this country. There was no special exertion made to accomplish the result, and only the usual complement of men was employed. The production of each week was as follows:

First week	4,527	tons.
Second week	4,531	"
Third week	4,651	"
Fourth week	4,761	"
Three days	2,392	"
Total	20,862	"

During the month the following large productions were made by the different turns in twenty-four hours: 926 tons, 857 tons, 900 tons, and 854 tons.

The blooming mill bloomed all the production of the Bessemer mill, in addition to some ingots from the open-hearth furnaces, and made a total tonnage of 21,586 tons for the month. During the month the following number of tons were rolled during twenty-four hours: 875, 886, 897, 916 and 920 tons.

The biggest run made by a single turn of eight hours was done by "B" turn on Monday last by producing 320 tons of finished stuff. Mr. John D. Kirk was the roller. —[Steelton Reporter, April 3.

The Journalist (117 Nassau street, New York) proposes to add to its already well-earned laurels by devoting special attention to trade journals, their *personnel* and peculiarities. This is an important field, which, judging from the efforts already made by the *Journalist* in this line, will greatly add to the value of that most excellent public tion.

BLAST FURNACE RECORDS.

ADVANTAGE OF HIGH OVER LOW STACKS.

Excellent Work of the Zanesville (Ohio) Furnace, After Being Remodeled.

The last five years have seen a steady movement in the direction of increasing the height of furnaces, resulting uniformly in increased output and diminished fuel consumption.

Through the courtesy of the officers of the Ohio Iron Company, at Zanesville, Ohio, Messrs. M. Churchhill and C. W. Green, we are enabled to give some interesting figures, covering the work of the same furnace under changed conditions. Apart from the interest attaching the comparison of the two sets of figures, the good work of the enlarged furnace must attract attention. Considering the character of the materials used, the fuel consumption compares favorably with any work that has come under our notice.

The following figures cover two campaigns—one of 46 weeks, from June 2, 1882, to May 19, 1883, with the furnace 59′ high by 13′ bosh, making 19,495 tons, and the other 26 weeks, from February 4, 1885 to August 11, 1885, with the furnace enlarged to 75′ high by 15′ 6″ bosh, making 16,913 tons of pig iron:

Dimensions, etc.	Old.	Enlarged.
Height of furnace	59′	75′
Diameter of bosh	13′	15′ 6″
Diameter of hearth	8′	8′
Height of tuyeres above floor	5′ 6″	5′ 6″
Number of tuyeres	5	5
Diameter of nozzles	5½″	5½″
" of bell	4′ 9″	4′ 9″
" at stock line	10′ 6″	11′
3 Whitwell stoves	17′x65′	17′x65′
Average temperature of blast	1,400° F.	1,400° F.
2 engines. Steam cylinder	32″x60″	32″x60″
Blast cylinder	72″x60″	72″x60″
No. of revolutions	20	20
Average amount of iron made per diem	60.54 tons	92.93 tons
Fuel consumption per ton iron 50.70 coke, 22.30 coal } 73. bush	2,920 lbs	
Fuel consumption per ton iron 42.75 coke, 12.46 coal } 55.21 bush		2,208 lbs
Yield of ore mixture	55.43 per cent	59.70 per cent
Limestone per ton iron	1 ton	.51 ton
Best week's run	548 tons 226 lbs	758 tons 516 lbs
Fuel per ton in best week	2,330 lbs	1,960 lbs

In the above calculation 1 bushel of coal of 80 lbs. is taken as equal to 1 bushel of coke of 40 lbs.

All calculations of stock consumption are based upon purchase weights, hence the actual furnace fuel consumption is entitled to a reduction of whatever percentage of waste there was; this certainly would amount to 2½ to 3 per cent.

Unfortunately for purposes of close comparison, there was a variation in the ore mixture used in the two blasts, so that we cannot accurately determine the degree of benefit resulting from the changed dimensions of the furnace. In both cases the amount of mill cinder was about the same, say 25 per cent., but in the first blast, another 25 per cent. was native carbonate ores, carrying high silica. The ore mixture only yielded 55.43 per cent., as against 59.70; it was also more silicious, both from the nature of the material used and as is evidenced by the higher lime required.

It is the last blast that principally interests us. The ore and the mill cinder used amounted to 28,332 tons. Of this, as above stated, about 25 per cent. was mill cinder, carrying at least 25 per cent. of silica. The balance was made up of Lake Superior ores, with the exception of some 2,700 tons of magnetic ore. The Superior ores were part No. 1 and No. 2 specular ores and hematites, carrying at least an average of 6 per cent. silica. A noticeable feature in the work was, that up to the time that 14,054 tons were made, the average fuel consumption was 2,150 lbs. (purchase weights) to the ton. Some magnetic ore was then used, and the fuel went up to 2,208 lbs. for the whole amount of iron made.

A most noteworthy fact connected with the remodeling of the furnace, was the introduction of the Brown skip hoist. This method dispenses with top fillers. The filling is practically done in the stock house, and the stock mechanically discharged in the furnace.

Concerning this, Mr. Greene writes: "We like the Brown hoist very much, and think it contributed very largely to the good work of our furnace, by the uniform manner in which it distributed the stock in the hopper. What it does during the day, you can depend upon at night, and that is more than can always be said of the old way of filling."

IMPORTS of iron ore at New York, Philadelphia and Baltimore for the first quarter of 1886 aggregated 204,930 tons, as against 64,192 tons for the corresponding period of 1885.

SNOBBERY IN TRADE JOURNALISM.

After adjusting his eye-glasses and scornfully perusing a recent editorial in the IRON TRADE REVIEW, the editor of the Boston *Manufacturers' Gazette* delivered himself last week of the following choice specimen of snobbery:

Voting exemption from taxes to any manufacturing interest that may locate in a town is a very common thing to do. It has been the means of drawing attention to the peculiar facilities of a place, for power, labor, materials or market, and from out of such a policy have come a great many very busy towns and important industrial centres. We know that in both Maine and New Hampshire there are localities that ten or fifteen years ago seemed destined to utter decay, that have since been rejuvenated and become leading places for business and population, because of the inducemenis then held out, but whose tax exemption conditions have now expired, and the impetus of this privilege will continue to hold these places to a steady industrial growth.

This method of securing thrifty towns seems recently to have hit some of our Western friends severely, and the IRON TRADE REVIEW of Ohio elaborates the list of offers from the New Hampshire March town meetings we recently printed into a philippic, "How to Stifle Enterprise." These Western people are unfortunate in their acquaintances in the East. Accustomed to the vastness of prairie life, they are chagrined that any enterprise should expect to thrive outside the sphere of their wide domains, or that any changing venture should hesitate to migrate westward; and when some bright Yankee farmers cogitate a plan to find a market for their products right at their very door, by bringing a large manufacturing population to locate there, the scheme is much to the chagrin of the wild West, and the confusion of its vanity. Perhaps there are some justifiable reasons for Ohio folk assuming such great consequence, for in these latter days Ohio sits on every map of the school geography as the comparative sum of greatness, by which to measure the area of foreign parts; and, as a consequence, Ohio swells herself into an assumption that has passed into history as the "Ohio idea." It is strange how little these people seem to know about New England. They come East, settle for a month on the sand spit at Nantasket, and vote the entire section a barren waste; whirl in a night to and from our mountain peaks, and brand the land a blank in rock and pine; and yet we here know, from the immense magnitude of our scissors business, that long hair is not now worn out West, while the wonderful growth of the Boston clothing trade testifies that buckskin leggings are not the habiliments of the Buckeye sons. Because New England capital has checkered the West with railways, it is no assurance it was for the only purpose of migrating her wealth or industry.

The several States in New England have made their growth through their manufacturing interests, and having become famous and wealthy in this direction, and still having opportunities for development, purposes to utilize every available spot for such attractions; and the products she cannot raise for the maintenance of her large population she is glad to buy from the West. If we supply their boundless prairies with farming tools and household utensils, and own the roads that carry them out and then are willing to take in pay vast stores of wheat, corn and pork, one would suppose those distant people would rejoice at our growth. Whether they do or not, we shall pursue the even tenor of our way and the policy that has been so fruitful of industrial strength we shall not abandon. If the farmers of the West have the natural facilities for a manufacturing business, we commend the policy to them. In the better price they could get for the stuff consumed at their door, is more than an equivalent for the shrinkage they now take, because of the long freights to markets. This we know is not an "Ohio idea," but it is a thrifty Yankee one, and if these could comprehend the problem how that tax exemptions makes higher valuations, and increased population makes better markets, this "Yankee trick" might be profitably adopted throughout the land.

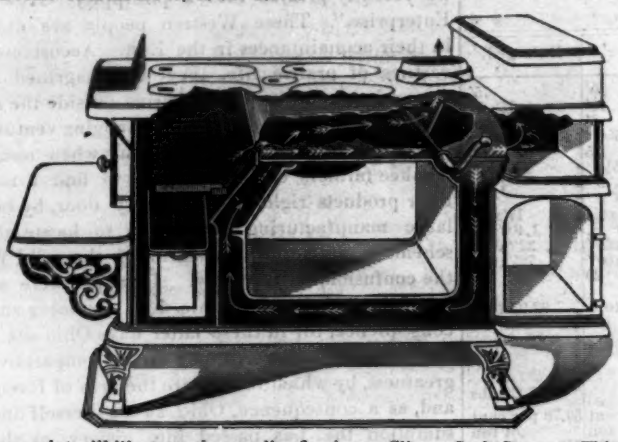
THE *Manufacturers' Gazette* wisely says:

Do not let your experienced men get restless and unconcerned without inquiring wisely for the trouble. "A fellow feeling makes us wondrous kind," is true in the sand, on the bench, at the lever, in the counting-room, parlor or street. Good and trusty men are not an overstock, and yet they might be numerous were the fellowships of life closer; hence, if you would draw men to you, be drawn to them. Love is the lever of life, and by its power can the rich and poor, the high and low, the weak and strong, be knit together for happiness, the sum total of life's desires.

CLIMAX COOK,

For Soft Coal

Is in every particular a cooking stove of the first-class. The proportions, size, style and finish are second to none. It is constructed with our Patent Oven Flues, which are far superior to the old return flue in general use. The Reservoir is of Nickeled Copper, with deep stamped pit, and is effectually heated without an extra damper. Side Shelves for the top can be put on when required. A cast Pan attached to a swing bracket under the hearth, provides a neat receptacle for the stove covers when removed from the top of the stove.



The above print will illustrate the peculiar flue in our Climax Cook Stoves. This plan insures the even distribution of the heat to all parts of the oven. No other stove or range has this flue.

Taplin, Rice & Co. MANUFACTURERS, **AKRON, O.**

"American Roller Skate"

The most Complete and Reliable Skate

YET MADE.

Light, Handsome and Durable.

With Double Rubber Cushions,

that WILL NOT CRUSH nor wear out during one season of constant use.

Our Adjustable Toe Clamp

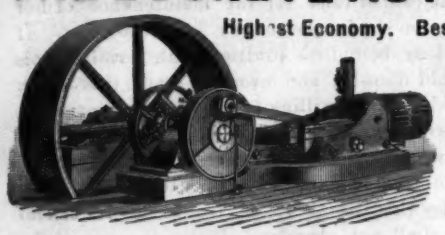
for Rink Skates, is a great success.

American Roller Skate Co.,

[Send for Circular.] MUNCIE, IND.

Stove and Hardware dealers should send for Circulars for our Adjustable Back Walls for Cook Stoves. 13

THE BUCKEYE AUTOMATIC ENGINE



Highest Economy. Best Regulation. Superior Construction.

These engines are constructed for heavy and continuous duty, at medium or high rotary speeds.

Illustrated Catalogue sent free.

Address **Buckeye Engine Co.,** SALEM, OHIO,

—OR—

GEORGE A. BARNARD, Eastern Sales Agent, 70 Astor House, N. Y.

D. L. DAVIS, Chicago Sales Agent, 34 S. Canal-st., Chicago, Ill. 40

Cleveland Foundry

Castings

For Machinery and Rolling Mills

Car Wheels

all sizes and kinds, with and without Axles.

Chilled Faced R. R. Frogs

STREET RAILROAD TURNOUTS.

Nos. 9, 11 & 13 Winter Street. } **Bowler & Co**

STEEL CASTINGS

FROM ¼ TO 15,000 Lbs. WEIGHT.

TRUE TO PATTERN, sound, solid, free from blow-holes, and of unequalled strength. Stronger and more durable than iron forgings in any position, or for any service whatever. 40,000 Crank Shafts and 30,000 Gear Wheels of this steel now running prove this. Cross-Heads, Rockers, Piston Heads, etc., for Locomotives. STEEL CASTINGS of every description. Send for Circulars and prices to

CHESTER STEEL CASTING CO.,

WORKS: Chester, Pa. } OFFICE: 407 Library St., Philadelphia, Pa.

HAMILTON WORKS.

William Tod & Co., Youngstown, O.,

SOLE BUILDERS OF THE

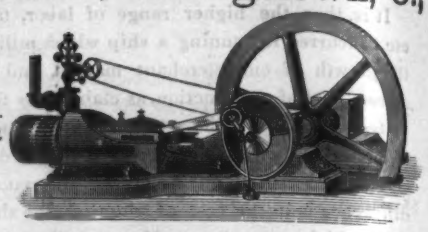
Porter - Hamilton Engine,

50 to 500 H. P. Modern Design.

PLAIN, STRONG, EFFECTIVE, ECONOMICAL. COST LESS THAN ANY OTHER FIRST-CLASS ENGINE.

Blast Furnace Engines on hand.

Prices and Description on application.



Also a stock of other Engines (our make). Mention this paper.

Clinch Wrench.

The accompanying cut represents the Clinch Wrench, the MOST PRACTICAL in the market, made entirely of Tempered Cast Steel. Is self-adjusting to size of nuts, from ¾" to 1¾" diameter; pipe wrenches made on same principle. It is cheaper and more durable than any other wrench. For particulars address. KINDERMANN & SCHROEDER, 106 Canal St., Cleveland O

A. TEACHOUT & CO.

JOBBERS OF

Doors, Glazed Windows, Glass, Blinds, Mouldings, &c.

42, 44 and 46 Michigan St., Cleveland, O. 27 and 29 West Spring St., Columbus, O.

THE J. E. EVANS

Anti-Friction Skate

Perfected on the Ball-Bearing Principle

In general use by Experts and Fancy Skaters

who pronounce it the Best, Easiest Running and Cleanest Skate mad. It is perfect in Adjustability to suit Beginner or Expert, and

IS SELF LUBRICATING

Evans Skate Co.,

MANUFACTURERS.

177 W. 4th Street,

Cincinnati, Ohio.

Agents for the **Leatheroid Roller,** the easiest running, finest finished, and **MOST DURABLE** Skate Roll ever made.

THE SCIENTIFIC PORTABLE FORGE

AND

BLACKSMITH HAND BLOWERS.

GUARANTEED

The Lightest Running! The Strongest Blast! The Most Durable!

ADAPTED TO ALL KINDS OF WORK,

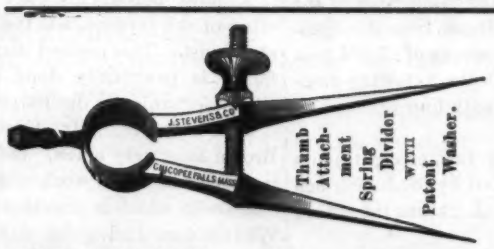
Send for Catalogue! **AND MADE IN STYLES AND SIZES TO SUIT.**

THE FOOS MANUFACTURING CO., - - Springfield, Ohio.

The McCoy Manufacturing Co.

Manufacturers of **McCoy's Patent Clips, and Wagon, Farm and Street Car Double Trees and Neck Yokes.** Also, **Combined Triple and Double Tree.**

Write for Circular and Price List. Mention this paper. [1] INDIANAPOLIS, IND.



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CHICOPEE FALLS, MASS.

Manufacturers of

SPRING CALIPER AND DIVIDERS,

Fine Machinist Tools and Fire Arms.

OUR SHOOTING GALLERY RIFLE IS THE FAVORITE EVERYWHERE.

SEND FOR ILLUSTRATED CATALOGUE.

Industrial Notes

IRON AND STEEL WORKS.

Blast Furnaces.

*** It is reported that Victoria Furnace (coke), in Virginia, will be leased by a new company, and will be blown in again. The furnace has been out of blast for years.

*** The Pennsylvania Furnace, near Huntingdon, Pa., which has been lying idle since the inauguration of the soft-coal strike in Clearfield county, resumed operations April 5. The extensive ore banks at Scotia, Centre county, upon which the furnace depends for supplies, will also resume work.

*** Pickands, Mather & Co., of this city, have leased the Ella Furnace, at Middlesex, Pa. As soon as some repairs are completed, she will be blown in, and with the Fannie Furnace run on Bessemer iron. The firm have secured a large contract for Bessemer iron, which will keep the two furnaces busy for the coming six to eight months.

*** J. P. Witherow Thursday of last week completed a contract for two large blast furnaces, of the most modern and improved pattern, to be erected near Birmingham, Ala. The furnaces are to be completed this year, and are only the precursors of others to be erected at the same place. The order was given H. F. DeBardeleben.—[New Castle (Pa) Guardian.

*** The furnaces and plant of the Philadelphia Iron and Steel Co., No. 939 North Delaware avenue, Philadelphia, were sold at auction on the 7th inst., for $100,000. James V. Watson, the President of the Consolidation Bank, a large stockholder, was the purchaser. The works were built in 1845. The plant consisted of one single and three double puddling furnaces, one rotary squeezer, seven heating furnaces and five roll-trains—two 18-inch, one 12-inch and one 8-inch. The works have a capacity for producing 10,000 tons annually of bar, angle, and tee iron, fish-plates and special shapes.

Rolling Mills, Nail Mills, etc.

*** The Belleville Steel and Iron Nail Works of Belleville, Ill., has increased its capital stock from $45,000 to $70,000.

*** The Hartman Steel Co., Beaver Falls, Pa., has begun the erection of a brick building for the purpose of introducing machinery and manufacturing wire door-mats, steel signs, etc., under patents that it has lately purchased a controlling interest in.

*** Everson, Hammond & Orr, Pittsburgh, are contemplating the erection of a new twelve-ton open-hearth furnace. They have just completed a new six-ton furnace. They are also putting in their mill a train of continuous rolls, a new fly-wheel and replacing old machinery with new. The renovating will be finished about the middle of April and the firm will almost have a new mill.

Machine Shops.

*** The Holly Mfg. Co., of Lockport, N. Y., have under contract 20 pumping engines of the Gaskill type ranging in size from 1,500,000 gallons daily capacity to 12,000,000 gallons. A number of these machines are of the high-duty type, and have a guaranteed duty of 100,000,000 foot-pounds.

*** Armington & Sims, Providence, have received an order for a number of additional engines from the Italian Government, to be used for electric-lighting purposes in Milan. This order will make 20 engines of this company's manufacture in use in Italy, and besides they have 40 in use in the city of London, 16 in Chili and several in France and other European countries.

*** Charles F. Elmes has just completed for the Williams Engine Company a new high speed automatic cut-off engine, which in practical working has even exceeded the expectation of the owners. He has orders to construct several others of the same design, and of 80 horse power. A fair amount of repair and job work is under way, besides other engagements in special machinery.—[Chicago Industrial World.

*** The firm of Avery & Erwin have located at Asheville, N. C., and have built one of the best and most complete furniture factories in the United States. They have a new automatic 100 H. P. engine, which gives power to a line shaft 200′ in length. The factory is arranged with all the latest and most modern conveniences, such as dry house and heating apparatus, and the machinery is the very latest that money could buy for manufacturing furniture in a first class manner, and at a a minimum cost. Mr. Avery, who made the selection of machinery, is a young man of 23 years, a native North Carolinian. He investigated and went through all of the furniture factories in Cincinnati, Indianap lis, Grand Rapids and other places, and gained considerable information in his travels in regard to the latest devices and improvements. Avery & Erwin's mill is situated in Asheville, on the banks of a small river, which furnishes them with logs. They have the most improved booms and propose to take advantage of this extra water power. He cuts his logs on a band saw mill. The machinery, as Mr. Avery has it arranged, will take the timber from the logs and with very little waste make furniture of it, smoothing it, polishing it, carving it and putting it together by machinery, thus saving cabinet makers, which is the great point sought after in that part of the world. The furniture factory, together with the saw mill, when completed will represent an investment of over $50,000 and will be a credit to North Carolina. The entire outfit of furniture machinery, including the band saw mill, shafting, pulleys, hangers and belting, was furnished by the Egan Co., of Cincinnati Ohio.

Foundries.

*** The Gloucester (Mass.) Iron Works have a contract for 800 tons of pipe for a firm in Cairo, Ill.

*** The Blakeney Foundry Co., Springfield, O., are running to the fullest capacity; they have orders enough to keep them busy until January 1st and say prospects were never better than at the present time.

*** The Lewis Foundry and Machine Co., Pittsburgh, shipped to Lockport, N. Y., a No. 2 shearing machine for boiler iron cutting, the weight of which exceeded 30,000 pounds. The huge affair attracted much attention.

*** Mr. R. A. Barrett, manager of the Old Alcade blast furnace, has been in St. Louis for the purpose of purchasing machinery and the necessary equipments for the water-pipe foundry now being erected by order of the Penitentiary Board at Rusk Penitentiary, Texas. The foundry is being built adjoining the blast furnace, and the iron will be run direct from the furnace to the pipe flasks.

CHANCES FOR CONTRACTS.

New Enterprises, Extensions, etc.

*** R. F. Wallis & Co. are about to build a plow factory at Bellbuckle, Tenn.

*** W. F. Adams, Corinth, Miss., intends to add a machine shop to his iron works.

*** Thomas H. O'Connor will build a hardware factory on Gold street, Brooklyn, N. Y.

*** The Keystone Safety Nut Lock Co., New York City, capital stock, $250,000, has been incorporated by James P. Ball and others.

*** The Superior Hardware and Brass Works, Chicago, Ill., capital stock, $1,000, has been incorporated by Louis H. Ellickson and others.

*** The Knights of Labor of Phillipsburg, N. J., have formed a co-operative stove manufacturing company. They have purchased the old Robinson Carriage Factory for their business.

*** A shop is in process of construction at Birmingham, Ala., for the manufacture of a newly-patented sugar mill. A recently-started spoke factory is doing a good business at Cullman, Ala.

*** Western Iron Co., Raime, Wis., capital stock, $10,000, has been incorporated by Fred Robinson, Frank H. Bull, Richard T. Robinson and W. H. Johnson. Object: Manufacture iron working machinery.

*** Charles Kaestner & Co. have purchased ground on South Jefferson street, Chicago, on which to erect a new factory which will give them more than double their present manufacturing facilities.

*** It is reported that a party of Pittsburgh capitalists are negotiating with the representatives of the Jacobs estate for the purchase of the Snowdon Iron and Machine Works, at Brownsville, for the purpose of converting them into a nail works.

*** Messrs. P. Matheson & Son have decided to remove their tube and pipe works from Middleton, Pa., to Youngstown, O., the Ohio Gas and Fuel Co. guaranteeing an ample supply of gas. This move will extend the facilities of the concern. The erection of the necessary buildings, which will cost $150,000, will soon be commenced.

*** The Brown and Van Arsdale Manufacturing Company, having sold their factory and grounds at the corner of Michigan and Kingsbury streets to the Chicago, Lake Superior and Evanston Railroad, will shortly prepare plans for the erection of new works in the vicinity of Grand Crossing, Ill. They received $80,000 from the railroad for their property.—[Chicago Industrial World.

Fires in Iron Works.

*** April 6, the iron works at Florence, Wis., burned. Loss, $50,000.

*** O. H. Smith's machine shop in Caribou, Mo., was recently damaged to the extent of $1,000 by fire.

*** The machine shop of J. & G. Adams. and operated by Mr. McDonald, at Millersburg, O., burned March 31. The loss will probably reach $9,000 or more on buildings, machinery, patterns, etc.; insurance, not given.

GENERAL IRON TRADE NOTES.

Cleveland.

*** The Lake Shore Foundry Co.'s Case avenue foundry, recently burned, will be rebuilt at once.

*** The Cummer Engine Co. have recently received orders for a 287 h. p. Cummer automatic engine for Wahl Bros., of Chicago, Ill., and a repeated order for a 215 h. p. engine from the Marshall Roller Mills, of Marshall, Mich. The Cummer Co. have also received orders for nine of their "Simplex" automatic engines within the past few weeks, six to go to Chicago, two to Milwaukee and one for the Taylor & Boggis, Co., of Cleveland, the powers ranging 50 horse and under. They have also just received an order for two complete hoisting plants for Messrs. H. M. Benjamin & Co., of Milwaukee Wis. Among the Cummer Co.'s late shipments are a 50-ton refrigerating plant for the J. Walker Brewing Co., of Cincinnati, O., and a 215 h. p. automatic engine for the Peninsular Car Co., of Detroit, Mich. They report their sales for the Jonathan Mills Universal Flour Dresser constantly on the increase, having sold double as many since the 1st of January as for the corresponding period last year.

Ohio.

*** The McNeil Boiler Co., Akron, has a contract with the Piqua Strawboard Co., for two globe rotary boilers.

*** The American Nail Machine Co., Ashtabula, shipped their last car of nail machines to the Pacific Iron & Nail Co., Cal., April 7th.

*** The Roller Chain Belting Co., Columbus, reports that its works are running full-time, with orders for chain elevators and drive-belts to keep it busy for some time yet. The demand for this machinery is steadily increasing.

*** Winslow Alderdice, mechanical engineer of the Akron Iron Co., and a gentleman of unusual inventive genius, has leased of the Diamond Match Co., the building on Factory street known as the "poke shop," where he will experiment with a new polished tubing of his own invention. This tubing is said to have a polished surface like the famous hot polished shafting manufactured by the Akron Iron Co., and for which the world also owes much to Mr. Alderdice's inventive faculties.—[Akron Beacon.

*** The Lorain Manufacturing Co. is to succeed The United Brass Co.. at this place. It has leased the building, machinery and tools, and bought the stock of the old company. The Lorain Manufacturing Co., will manufacture all the goods they can and the United Brass Co., will take them and find a market for them. New articles, both of brass and iron, will be added to the list of goods made by the company. This will enable the works to go ahead without stopping. The Haydenville, Mass., works were disposed of about one year ago, under similar circumstances.—[Lorain (O.) Times.

In General.

*** The Chicago Forge & Bolt Co. is running on full time in every department. Several large orders are booked ahead, that will keep them busy for several months.—[Journal of Commerce.

*** George C. Morgan, Chicago, has just closed contract to furnish the American Cutlery Co., of that city, a 150 H. P. Firmenich safety steam boiler, this being the second purchase, after having used one for six years.

Nickel Plate excursion to Chicago and return, from Lorain and all points west to Valparaiso, Tuesday, April 20. Regular train, no change of cars, baggage free, superb accomodations. For tickets and all information call on nearest Nickel Plate Agent, or write to J. W. Butler, Excursion Manager, 214 Bank Street, Cleveland, O. Excursion tickets good seven days.

NOTICE.—Parties desiring complete printed lists of firms in any line of trade, for mailing Catalogues or Circulars, can obtain same at reasonable rates, or can have circulars addressed and mailed, by

DAY & CARTER.
tf 130 Water Street, Cleveland, O.

Wanted.

A GOOD BUSINESS MAN with $5,000 capital, to take an active interest in a new manufacturing enterprise, in iron goods. Address J. B. S., care Iron Trade Review. 14tf

Wanted.

A GOOD MAN to represent an Elevator manufacturer, for Cleveland and vicinity. For particulars address J. G. B., care Iron Trade Review. 09tf

Wanted.

AN old established firm, factors of Oils, Colours, and other articles used by Engineers, and Builders, with every facility for conducting a large business, are desirous of obtaining good Foreign Agencies; superior references. "R. M." care of Brown, Gould & Co., 52 New Oxford St., London, England.

For Sale.

One Planer, 18"x18"x4', Gould & Eberhard.
One lathe, 15" swing, 6' bed, hollow spindle.
One Cox & Prentiss Milling Machine, small size.
One Prentiss Foot Lathe.
Bolt Cutter, Drill, &c., &c., &c.
All in good condition, for sale at low prices.
21tf E. H. JONES & CO.

For Sale.

FACTORY.—Nearly new.—On two Railroads acre of buildings; cost $33,000; take $23,000 part real estate; large engines, boilers, shafting etc.; will put capital in some good manufactory
09 A. C. McCONNELL, Cleveland, O.

For Sale Cheap.

A NEW PONY PLANER, planes from ½" to 6" thick and 24" wide. A strong and durable machine; address for further particulars, X X, care Iron Trade Review, Cleveland, Ohio. 52tf

For Sale.

Rails. Engines. Cars.

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1 24-in. by 12 ft. " " " "
1 17-in. by 8 ft. " " " "
2 6 in. by 6 ft. " " " "
1 14-in. by 6 ft. " " " "
3 Bolt Cutters, cutting to 1½ inches, "
1 40x30x7-ft. Planer, second hand.
1 42x42x25 ft. " "
1 58x46x16-ft. " "
2 24-in. Swing Drill Presses, second hand.
1 44 in. " " " back gear.
1 60-in. " " " back gear and self-feed second hand.
1 Helve Hammer; 2 Band Saws; 1 each 12 and 24-inch Planer and Matcher; 1 Shaper; 1 Scroll Saw; 2 Surfacers; 1 Re-saw; 12 Vises; 3 feed mills, new; 1 Tenoner; 1 Rope Moulding Machine, new.
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1 10x18 " " " " "
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Patents.

H. T. FISHER,
Solicitor and Counselor.

Late Examiner U. S. Patent Office. Eight years experience in Examining Corps. The best of references. Patents obtained by me will be described in this paper free. [05]
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CUYAHOGA STEAM FURNACE CO., build large engines for Stationary and Marine purposes. Blowing Engines for Blast Furnaces and Steel Works. Steam Pumps for Copper Mines, and Steam Helve Hammers for Forges and Bloomeries. Make all kinds of heavy Castings. Foundry and Machine Shop corner Detroit and Center Streets

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PIG IRON.
COR. FOURTH AND RACE STREETS,
Cincinnati, Ohio.
Chicago Office—No. 107 Dearborn Street, Room 11.
GEORGE K. HOSFORD, Manager. 30

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COMMISSION DEALERS IN
IRON ORES,
from Marquette, Gogebic and Menominee Districts.
CLEVELAND, O. 40

BUSINESS DIRECTORY.

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CHAPMAN, G. L., builder of Engines and Machines. Also Jobbing and Repairing.

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Canton, O.

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CITY BOILER WORKS, manf's of Stationary, Portable, and Locomotive Steam Boilers. All work warranted. Borger Bros. & Co. 12

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72-hour Connellsville Coke.
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Mines on the Cleveland, Lorain & Wheeling R. R. Capacity, 2,000 tons daily.
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Tod—Brier Hill Scotch, Iron River, Grace, Bessemer.
Also a full line of **Southern Foundry and Forge Irons.**

WANTED An active Man or Woman in every county to sell our goods. Salary $75 per Month and Expenses. Canvassing outfit and Particulars FREE. STANDARD SILVER-WARE Co., Boston, Mass. 33-6m

MARKET REVIEW.

OFFICE OF IRON TRADE REVIEW.
CLEVELAND, O., FRIDAY EVENING, April 16, 1886.

Iron Ore.

There is little change to note in the iron ore market beyond a possible decrease in the number of inquiries and fewer transactions. The market is, nevertheless, in a very healthy condition, and prices are firm with no prospects of weakening, as sellers are confident and show no disposition to make concessions in order to effect sales. The movement of ore from all lake ports to furnaces is unprecedented, and is crowding the carrying capacity of the railroads, which are pushed to extremities to furnish even enough cars to supply two-thirds of the demand. While lake navigation on the lower lakes is now nominally open, if reports and indications are to be relied upon, it will be some time before vessels can reach upper lake ports, and new ore will be considerably later in arriving than was expected earlier in the year. We quote as follows:

No. 1 Specular and magnetic Bessemer ores per ton	$6 25
No. 1 Specular (non-Bessemer) ores per ton	5 50
Bessemer Hematites	$4 75@5 50
Non-Bessemer Hematites	$4 00@4 50

Pig Iron.

The pig iron market is perhaps fairly steady, but the general feeling is hardly improving, and, in fact, the tendency is rather in an opposite direction. A combination of circumstances seems to induce buyers to hold off, and consequently transactions are of a quite limited nature. No one seems disposed to buy anything that is not needed for immediate use, so that while it is not difficult to quote asking prices, it is not an easy matter to quote selling prices for large lots, simply because there are none such offering; however, a drooping tendency is noticeable. Favorite brands are firm, but others are neglected. Local firms are holding prices very strong, but outside parties reaching the same territory are trying to sell, and although the aggregate amount may be comparatively small it seems large when the demand is so limited. While prices are not openly shaded, there seems to be evidence that some parties lacking confidence in the market are making more concessions than formerly. That such should be the case seems a little ill-advised, as the general opinion among larger manufacturers is that the present dullness is only temporary and will soon pass away, and that there is no present necessity for lower prices, which would make margins of profit even closer than last year. Many furnaces have orders sufficient to use their output along into June, and with few, if any, exceptions enough are received to keeps stocks from accumulating, and in view of this fact the only excuse for concessions is lack of confidence in the future which may result in orders being taken at unwarranted prices. We quote f. o. b. cars, Cleveland, four months:

CHARCOAL PIG IRON.	
No. 1 Lake Superior charcoal	$22 00@23 00
No. 2 Lake Superior charcoal	23 00@24 00
Nos. 3 and 4 Lake Superior	23 00@24 00
Nos. 5 and 6 Lake Superior	22 00@23 00
Southern Car Wheel	26 00@29 00
BITUMINOUS AND COKE IRON.	
No. 1 Bessemer	$20 00@21 50
No. 1 foundry, all lake ores	19 00
No. 2 same	18 00@18 50
No. 1 foundry, lake ores, with cinder mixture	18 00@18 50
No. 2 same	17 50@18 00
No. 1 foundry, native Ohio ores	19 50
No. 2 same	18 50
No. 1 silvery, native Ohio ores	19 50
No. 2 same	18 50
No. 1 gray forge, red short	17 00@17 50
No. 1 gray forge, neutral	16 00@1700
No. 1 Ohio Scotch (Softener)	19 25
No. 2 Ohio Scotch "	18 75

Manufactured Iron.

The manufactured iron market gains little strength as time passes. The prospect for improvement seems hardly encouraging, and a turn for the better is not expected until the condition of business becomes more settled. pring trade does not pick up as rapidly as manufacturers had reason to expect. The opening of navigation will undoubtedly increase to a considerable extent the demand for finished iron. Prices are still lower than is consistent with the increased cost of raw material, and improved prices depend on increased demand.

Hardware.

The demand for hardware continues of fairly satisfactory dimensions, although there are some undesirable features in the market. The whole tendency of trade, however, is toward a higher plane, and with an occasional drawback, the course of the market is steadily upward. The labor troubles exert some influence detrimental to the freedom of trade, but their speedy settlement will undoubtedly result in brighter prospects. With few exceptions, changes in prices are toward higher values, and the advance is generally maintained. Screws, padlocks, picks and mattocks, copper rivets and burrs and the smaller sizes of wire nails are all held at higher figures.

NAILS.—The conference of a committee of the Western Nail Association with one of the United Nailers failed of result. The card rate of nails was not changed at the last meeting of the Association, held at Wheeling, Wednesday. The Secretary reports 1,039 machines in operation at manufacturers' scale of wages, an increase of 14 machines since last week.

Scrap Iron.

There has been as yet no improvement in the scrap market. Demand is quite irregular, and prices on some grades show a declining tendency.

Metals.

The demand for metals is less active, and in harmony with other branches of trade, shows the effect of the troubles which are now menacing the business world. Prices are about as heretofore quoted.

Coke.

The coke market as far as demand is concerned is experiencing a little boom. The available ovens are all in operation and work is being pushed. There is even more activity in the Connellsville region than was noticeable before the strike. If the demand retains its present dimensions, there is no doubt prices will take another step upward in the immediate future; $1.50 rates by the 1st of July need surprise no one, and they may come before that time.

LOUISVILLE PIG IRON MARKET.

Reported for the IRON TRADE REVIEW by Geo. H. Hull & Co.

The market for pig iron shows some improvement, and there is more inquiry for small lots than has been the case for fully three months. More iron might be sold at a concession of 50 cents per ton, but most furnaces are holding prices firm. From various points in the interior, where irons have been at full prices, reports come back declining offers, saying the parties have been able to supply their demands at a lower price, but whether with Southern irons or Ohio irons is not stated; but it seems quite evident that markets in the North are being cut by irons from some other locality. We quote for cash as below (April 14):

PIG IRON.—Southern Coke, No. 1, Foundry, $18 00@$18 50; Southern Coke, No. 2, Foundry. $17 00 @ $17 50; Southern Coke, No. 2½, Foundry, $16 50 @ $17 00; Hanging Rock Coke, No. 1, Foundry, $17 75@$18 50; Hanging Rock Charcoal, No. 1, Foundry, $20 00@$21 00; Southern Charcoal, No. 1, Foundry, $18 00@$19 00; Silver Grey, different grades, $15 50@$16 50; Southern Coke, No. 1, Mill Neutral, $16 00@$16 50; Southern Coke, No. 2. Mill, Neutral, 315 00@$15 50; Southern Coke, No. 1. Mill, Cold Short, $15 50@$16 00; Southern Charcoal, No. 1, Mill, $17 50@$18 00; White and Mottled, different grades, $13 00@$14 50; Southern Car Wheel. Standard Brands, $25 00@$26 00; Southern Car Wheel, other brands, $21 00@$22 00; Hanging Rock, Cold Blast, $27 00 @$28 00; Hanging Rock, Warm Blast, $21 00@$22 00.

CINCINNATI PIG IRON MARKET.

Reported for the IRON TRADE REVIEW by A. Pluemer & Co.

The market is rather dull, and the cause generally assigned for this condition is fear, or in other words, a distrust as to American labor. Confidence has been somewhat shaken by strikes, and prices are weaker, but there is no change of quotations of standard brands. Most furnaces have enough orders; they are in good position to await further developments and willing to do so, and buyers are slow in placing contracts. Only small lots and off grades are pressed for sale.

Reported for the IRON TRADE REVIEW by Rogers, Brown & Co.

The pig iron market continues in a state of waiting. The heavy unfilled orders keep the furnaces going and are a stand-off against the slowness of buyers in placing new ones. It is felt that much depends on the prolongation and outcome of the present labor troubles. If railroads and manufacturers are to be harassed through the Spring and Summer with strikes and disputes, it will materially affect all new enterprises, and hurt general business. There has been a fair run of small orders through the week, and no quotable change in prices We quote for cash f.o.b. cars Cincinnati (April 12):

HOT BLAST FOUNDRY IRON.—Ohio and Southern Strong Coke. No. 1, $18 00@$18 50; Ohio and Southern Strong Coke, No. 2, $16 50 @$17 50; Ohio and Southern Strong Coke, No. 3, $16 00@$17 00; Ohio Soft Stonecoal, No. 1, $18 00@$18 50; Ohio Soft Stonecoal No. 2, $17 00@$17 50; Mahoning and Shenango Valley coke, No. 1, $18 50@$20 00. CHARCOAL IRON.—Hanging Rock, No. 1, $21 00@ $22 00; Hanging Rock No. 2, $20 00@$21 00; Tennessee and Alabama, No. 1, $19 00@$19 50; Tennessee and Alabama, No. 2, $18 00@18 50. FORGE. — Strong Neutral Coke, $15 50@$16 00; Mottled Coke, $14 00@$15 00, Cold Short Coke, $14 00@$15 00. CAR WHEEL MALLEABLE—Southern Car Wheel Iron, $23 00@$25 00; Hanging Rock Cold Blast, $28 00@$30 00; Hanging Rock Warm Blast $22 00@$24 00; Lake Superior Malleable. $24 00@$25 00.

CHICAGO PIG IRON MARKET.

Reported for the IRON TRADE REVIEW by Mack & Durkee.

The condition of the market here from week to week is such that there is nothing new whatever to say, and the prospect seems to be that the trade will be very quiet until something definite is decided regarding the labor troubles. A great deal of iron is being melted, and the manufacturers will be compelled to buy before long if they run at all. There have been several large lots of Lake Superior charcoal placed at prices somewhat under quotations, but as they were lots that have been threatening the market for some time their removal has a tendency to strengthen the prices on regular brands. We quote prices four months on cars here, as follows (April 13):

Lake Superior Charcoal, Nos. 1 and 2, $22 00; Lake Superior Charcoal, Nos. 3, 4 and 5, $23 00; Lake Superior all-ore coke iron, No. 1. $21 00; Lake Superior Cinder mixed coke iron, $20 00; Ohio Blackband Scotch. $22 00, Ohio cinder Scotch, $20 00; Hanging Rock Charcoal. $23 00; Hanging Rock softeners, $20 50; Southern charcoal, $21 00@22 00; Southern coke, No. 1, $20 00; Southern coke, No. 2, $19 00; Virginia brown ore Scotch, $22 00.

DETROIT PIG IRON MARKET.

Reported for the IRON TRADE REVIEW by Charles Himrod & Co.

The large sale which we spoke of as having been made last week we find is a fact. What the exact particulars of sale are we are unable to report. The numerous other buyers that seem coming into the market and purchasing, in many cases a season's supply, lead one to believe that, generally, the labor troubles must be settled and there are going to be large calls for manufactured goods in the iron line during the coming season. While there has been no noted advance in price, there is a stiffening all along the line for charcoal iron, and the same can be very truly said in regard to other grades, as the valley furnaces on account of their large orders for Bessemer have curtailed their supply of foundry irons, and it is not an easy thing to get an order of any magnitude filled with any promptness. Altogether the market can be said to be in a very healthy and firm state and is fairly quotable to-day (April 14) as follows:

Lake Superior Charcoal, all Nos. $22 00@$22 50; Lake Superior Coke, all ore, $20 25@$21 00; Lake Superior Coke, cinder mixed, $19 00@$20 00; Standard Ohio Blackband. $20 25@$21 00; Southern No. 2, $20 25@$21 00; Southern Silvery, open, $17 50@18 50; Southern Silvery, close, $17 00@$18 00; Jackson County (Ohio) Silvery, $18 50@19 25; American Old Iron Rails, $22 00@$24 00; Old wheels, $17 00@$18 00.

CHATTANOOGA PIG IRON MARKET.

Reported for the IRON TRADE REVIEW by Lowe & Tucker.

Business has resumed its normal condition, with increased vigor, and in some lines may now be said to be on a boom. The activity in real estate and in the building line has proved contagious, and many other lines in trade are feeling the effects of it in a remarkable degree. Many moneyed men from the Northern element are looking around for something to turn up where they can invest a few hundred, or a few thousand dollars, with a view of big returns in the near future. Many of the Southern foundries and machine shops are running full on stock work, which with the increased work offered them by the roads that are changing gauge keeps them full of work, hence the demand of pig from this quarter is on the increase. We have no change to note in prices, which are well maintained. We quote (April 12):

No. 1, Foundry $15 50@$16 50; No. 2, Foundry $14 50@15 00; American Scotch, $14 50@$15 00; Gray Forge, $13 00@$14 00; Car Wheel Iron, $23 00@$25 00; Ores, Red and Brown, $1 50@ $2.25; Furnace Coke, $2 00@$2 30; Bar Iron, per 100 lbs, $1 75; Old rails $21 00; Old wheels, $15 00; Wrought scrap, No. 1, 70c, Wrought scrap, No. 2, 50c.; Railroad splices, $1 85; Railroad spikes, $2.25.

PITTSBURGH PIG IRON MARKET.

Reported for the IRON TRADE REVIEW by A. H. Childs.

The market remains in very much the same condition that it was last week. Prices are nominally unchanged, but the sales have not been large and some buyers claim to have been offered concessions on certain brands. Manufacturers have found it impossible to get any higher prices for finished iron to correspond with the advance in pig, and consequently are buying very cautiously. Quotattons are (April 12):

PIG IRON.—No. 1, Foundry, $18 00@19 00; No. 2. Foundry $17 50@ 18 00; Gray Forge, $16 25@16 75; White and Mottled, $15 00@15 50; Warm Blast Charcoal, $20 00@24 00; Cold Blast Charcoal, $24 00@ 29 00; Bessemer, $19 50@20 50; 4 months.

ST. LOUIS PIG IRON MARKET.

Reported for the IRON TRADE REVIEW by Rogers Brown & Co., W. H. Shields, Manager.

The strike virtually ended on this side a week ago, and trains have been running regularly since then. On the other side of the river (East St. Louis) the strikers and their sympathizers have had full sway. The Governor of Illinois said, in effect, that he would not call out the militia until some one was killed. One woman and six men were killed yesterday, and the militia are there in full force to-day, to stay three weeks, or longer if necessary. They are a fine body of men and will stand no foolishness. In consequence trains are running more regularly at that point to-day and it is hoped they will continue. Considering the strike and the unsettled condition of labor generally, prices stand remarkably firm; no disposition to cut is shown, with the exception of a few Southern furnaces with "off" grades of brands, little known in this market. We quote for cash (April 10):

Charcoal Foundry—Missouri, $17 00@17 50; Southern, $18 00@ $19 50. Coal and Coke Foundry—No. 1 Southern, $18 25@18 75; No. 2 Southern, $17 25@17 50; American Scotch, $18 00@20 00. Mill Iron—Missouri, 16 25@16 75; Southern, $16 00@16 75. Car Wheel and Malleable—Southern, $21 00@25 00; Lake Superior, $20 00@24 00. Scrap, etc. — Old Car Wheels, $15 50@16 25; Old Rails, $20 00@21 00; Connellsville Coke (East St. Louis) $5 40.

Chagrin Falls & Southern RR.

TIME TABLE.

Went into effect January 1st, 1886.
Standard Time.

Chagrin Falls..lv.	7 00am	9 15am	12 10pm	4 30pm
Collins	7 10	9 25	12 20	4 40
Chamberlins	7 20	9 35	12 30	4 50
Solon.....arrive	7 30	9 45	12 40	5 00
VIA N.Y.P.& B.RR.				
Solon .....leave	7 40	10 15	12 50	6 05
Newburgh.....	8 05	10 33	1 10	6 20
Cleveland.....	8 20am	10 50am	1 30pm	6 35pm
Cleveland. leaves	7 00am	8 25am	3 00pm	4 25pm
Newburgh.....	7 18	8 40	3 15	4 45
Solon. .....arrive	7 40	8 56	3 38	5 10
VIA N.Y.,P.& O.RR.				
Solon .....leave	7 45	10 20	3 45	5 15
Chamberlins	7 55	10 30	3 55	5 25
Collins.....	8 05	10 40	4 05	5 35
Chagrin Falls	8 15am	10 50am	4 15pm	5 45pm

J. W. WILLIAMS, Gen'l Supt.

CLEVELAND — AND — Marietta Railroad.

New Through Line between the Ohio River and the Great Lakes.

The popular line to Chicago, St. Paul, Milwaukee, Minneapolis, and all points in the Great Northwest. Direct connection for the Pennsylvania Oil Fields, and all points East and Southeast. July 12, 1885.

GOING NORTH.

STATIONS.	Ex. No. 2.	Ex. No.4.
Marietta..... Leave	6 00 a.m.	3 00 p.m.
Whipple.....	6 40 s	3 44 s
Warner.....	6 50.....	3 54.....
Elba	7 02.....	4 07.....
Macksburg.....	7 10.....	4 15 .....
Dexter	7 18.....	4 23.....
Caldwell	7 42.....	4 50.....
Belle Valley	7 52.....	5 00.....
Pt. Pleasant	8 23.....	5 33.....
Byesville.....	8 38.....	5 51.....
Cambridge .....Arrive	8 54.....	6 10.....
Kimbolton	9 17.....	6 36.....
New Comerstown.....Ar	9 47.....	7 15.....
Phillipsburgh.....	10 05 s	7 40 s
Black Band.....	10 12 s	7 45 s
Canal Dover.....	10 28.....	8 05.....
Valley Junction.....Ar	10 51.....	8 30 p.m
Canton.....	11 39 a.m.	7 58 a.m.
Akron	12 33 p.m	8 54.....
Cleveland.....Arrive	1 50 p.m	10 15 a.m
Buffalo.....	7 35 p.m	2 40 p.m
Orrville.....	1 25 p.m	10 15 p.m.
Creston	1 55.....	10 45.....
Wellington	2 40.....	11 28.....
Norwalk	3 34.....	12 10 a.m.
Monroeville	3 44.....	12 25.....
Toledo	5 55.....	9 45 a.m.
Columbus	12 35 p.m	11 30 p.m.
Chicago	5 40 a.m	8 55 a.m.
Pittsburgh	3 30 p.m	6 10 a.m.
New York.....	6.00 a m	6 55 p.m.

GOING SOUTH.

STATIONS.	Ex. No. 1.	Ex. No. 3.
Toledo.....Leave	7 45 a.m	5 00 p.m
Monroeville.....	9 55.....	7 02.....
Norwalk	10 10.....	7 22.....
Wellington	11 00.....	8 10.....
Creston	11 50.....	lv5 30 a.m
Orrville.....	12 40 p m.	6 00.....
Cleveland .....Leave	8 35 a.m	5 40 p.m
Akron	10 00 a.m	7 00 p.m
Canton.....	10 58.....	7 52.....
Valley Junction	11 53.....	8 40.....
Valley Junction...Leave	2 15 p.m	7 35 a.m
Canal Dover	2 38.....	8 00.....
Black Band.....	2 57 s	8 18 s
Phillipsburg	3 02 s	8 23.....
New Comerstown.....	3 27.....	8 47.....
Kimbolton	4 00.....	9 17.....
Cambridge	4 30.....	9 45.....
Byesville.....	4 45.....	10 00.....
Pt. Pleasant	5 00.....	10 19.....
Belle Valley	5 30 s	10 54.....
Caldwell	5 40.....	11 04.....
Dexter	6 07.....	11 30.....
Macksburg.....	6 15.....	11 38.....
Elba	6 23.....	11 46.....
Warner	6 36.....	11 58.....
Whipple	6 46 s	12 08 s
Marietta	7 35 p.m.	12 50 p.m.

s Stop on signal only.

Connections made with all lines at junction points for all important cities east or west.

P. PEASE, Receiver and General Manager.
J. E. TERRY, General Passenger Agt.

Pittsburgh & Lake Erie Railroad.

On and after November 16, 1886, passenger trains will depart from and arrive at the Pittsburgh and Lake Erie Depot at Pittsburgh, as follows, Central time:

P. & L. E. R.,R. Depart for—

No. 7, Cleveland, Bradford and East,..... 6 30 a.m
No. 5, Buffalo, St. Louis, Cleveland ..... 7 20 a.m
No. 51, Beaver Falls Accommodation..... 8 30 a.m
No. 1, Buffalo, New York, and all New England points,.....10 20 a.m
No. 3, Chicago, Cincinnati, St. Louis,...12 55 p.m
No. 9, Buffalo Express..... 3 40 p.m
No. 11, Beaver Falls Accommodation..... 5 50 p.m

Arrive from—

No. 8, Buffalo and Cleveland Night Exp. 5 55 a.m
No. 10, Beaver Falls Accommodation.... 7 28 a.m
No. 2, Youngstown Accommodation,..... 9 10 a.m
No. 12, Chicago, Cincinnati & St. Louis, 12 45 p.m
No. 50, Beaver Falls Accommodation,... 1 35 p.m
No. 6, Buffalo Express,..... 5 10 p.m
No. 4, Cincin., St. Louis and Cleveland, 7 50 p.m

Pit sburgh & Lake Erie trains Nos. 2, 3, 5, 9, and 12 daily.

W. C. QUINCY, General Manager.
R. W. JONES, Master of Transportation.
GEO. REPPERT, Ticket Agent.
A. D. SMITH, Gen'l Pass, Ag't, Pittsburgh.

ALEXANDER NIMICK, President. GLENDY S. GRAHAM, Secretary. ARTHUR BRITTAN, Manag. & Treas.

Nimick & Brittan Mfg. Co.,

PITTSBURGH, PA.,

Manufacturers of

BUILDER'S FINE HARDWARE

Patent Burglar Proof Door Locks,
Knobs, Sash Locks and Padlocks,

Genuine Bronze and Imitation Bronze Goods.

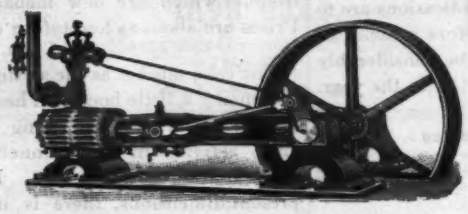
Large Catalogue mailed on receipt of 50 cents. A condensed Catalogue mailed free. 11

Automatic Throttling Engines.

These Engines are especially adapted for running

Electric Light Plants

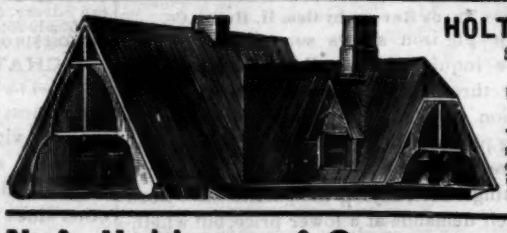
Steady Transmission,
ECONOMICAL USE OF FUEL



AND MODERATE IN PRICE.

ADDRESS, FOR CIRCULAR,

90 THOMAS SHARP & CO., Salem, Ohio.



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Successors to W. A. HOOVER & CO.
Manufacturers of
Holton's Patent Improved IRON ROOFING.
"V" edged Cremped Roofing, Siding and Ceiling. Responsible Agents wanted to handle our work in every County in the United States. Send for Circular No. 20 and Prices. 82 NEW LISBON, O.

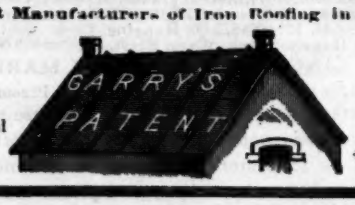
N. A. Haldeman & Co.,

Manufacturers of
Iron and Steel Roofing,
CORRUGATED SIDING,
Jobbers in 2 and 3-Ply Felt Roofing and Building Papers.
Send for Circulars and Price List. 44
1221 Main St. Wheeling, W. Va.

GARRY IRON ROOFING CO.

The Largest Manufacturers of Iron Roofing in the World.

Manufacturers of All kinds of **Iron Roofing,** Crimped and Corrugated Siding. FIRE PROOF DOORS and Shutters. Iron Frames for Roofs, Buildings, etc.

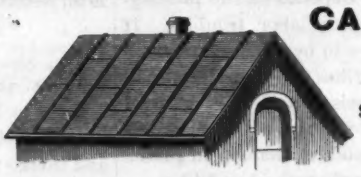


Iron Ore Paint AND CEMENT.
152 MERWIN STREET, CLEVELAND, O.
Send for circulars and Price List No. 19.

Established 1841.] THE MERCANTILE AGENCY. [105 Branch Offices.

R. G. DUN & COMPANY. Proprietors.

This establishment supplies (to subscribers only) all necessary information as to the standing, responsibility, etc., of merchants, traders, manufacturers, public companies, etc., through the United States, their Territories, and British North America. Also, makes collections and attends to legal business generally. It is the oldest and by far the most complete and extensive ever organized for the accommodation of banking and mercantile interests and for the general promotion and protection of trade. Reference books published quarterly. Cleveland Office—Rooms 73 to 80, Wilshire Building, 209 Superior St. Terms of subscription made known on application. R. P. CATTRALL, Manager.



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Manufactures of
SUPERIOR IRON ROOFING AND SIDING.
CROWLS PATENT
Standing Seam, Plain, Corrugated and Crimped Edge.
Awarded first medal at New Orleans Exposition.
CAMBRIDGE ROOFING CO., Cambridge, O.

Over 15,000 IN USE.

OTTO GAS ENGINE.

Guaranteed to consume 25 to 75 per cent. less Gas than ANY other Gas Engine Per brake Horse Power

TWIN ENGINES, ENGINES and PUMPS COMBINED.

Sizes: 1 to 25 indicated horse power.

Schleicher, Schumm & Co., {Philadelphia. Chicago.

Ft. Wayne, Cincinnati & Louisville RAILROAD.

THE POPULAR ROUTE BETWEEN THE

NORTH and SOUTH

THE DIRECT ROUTE TO OR FROM
Fort Wayne, Indianapolis, Terre Haute, Evansville, and St. Louis.

13 MILES SHORTER —BETWEEN— 13
Fort Wayne and Indianapolis
Than any other Route.

22 MILES SHORTER AND QUICKER 22
By 3 HOURS, Between
Louisville and Fort Wayne.

No change of Cars —BETWEEN— Cincinnati and Fort Wayne,
Via White Water Railroad.

All trains arrive and depart from Central Union Passenger Station Cincinnati, Corner Third Street and Central Avenue.

DIRECT CONNECTION
At Fort Wayne with L. S. & M. S. Trains for all points North and East.

Ask for Tickets —VIA— Ft. Wayne, Cincinnati & Louisville Railroad.

For sale by all Agents of connecting lines.
EAST, WEST, NORTH AND SOUTH.
W. W. WORTHINGTON, Gen'l Supt. ROBT. F. KINNAIRD, Gen'l Ticket Agent,
FORT WAYNE, IND.

DO YOUR OWN PRINTING

AND SAVE BIG BILLS, for Economy is an essential element of every business enterprise. Persons unoccupied will find the purchase of a Printing Outfit a most lucrative investment. The profit is so great that an outfit can be paid for in a short time. Any one with ordinary intelligence can do the work. Also amusing and instructive to Boys and Girls. Complete Outfits as low as $5.00. Full instructions accompany each order. Send for circulars and mention this paper.
R. L. ZERBE, 188 W. Fifth St., Cincinnati, O

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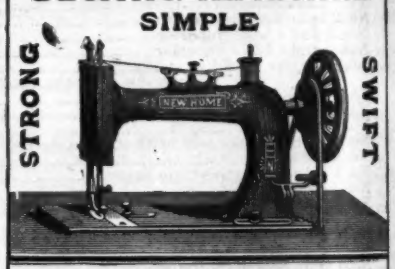
NEW HOME

SEWING MACHINE

SIMPLE

STRONG



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THE ONLY SEWING MACHINE THAT GIVES

PERFECT SATISFACTION

HAS NO EQUAL

PERFECT IN EVERY PARTICULAR

NEW HOME

SEWING MACHINE CO.
ORANGE MASS.
30 UNION SQ. N.Y. CHICAGO ILL.
ST. LOUIS MO. ATLANTA GA.
FOR SALE BY

CLEVELAND WHOLESALE PRICES.

HARDWARE.

Anvils.

per lb.
Eagle, American ..... 10 cts dis 20
Wrights ..... 9¾@10
Armitage mouse hole 9
Armitage mouse hole extra 11½
Wilkinson ..... 9½@10c

Anvil Vise and Drill.

Millers Falls Co. $18 ..... dis 20
Cheney Anvil and Vise ..... dis 25

Augers and Bits.

Snells ..... dis 60@60 & 5
Cook's Douglass Mfg. Co ..... dis 55
Russell Jennings' augers and bits, ... dis 25
Expansive Bits, Clark's small, $18; large, $26 ..... dis 35@ 35&5
Hollow Augers, Ives', French, Swift & Co ..... dis 25 & 10
Hollow Augers, Bonney's Adjust. ₱ doz. $48 ..... dis 40&10
Hollow Augers, Stearns' Adjust. ₱ doz., $48 ..... dis 20&10
Gimlet bits ..... per gross $3.00 to $3.25
Holts Bit Stock Drills ..... dis 25&10
Ship Augers ..... dis 15@20

Awl Hafts.

Sewing, brass ferrule, ... ₱ gross $3.50, dis 40&10
patent sewing, short ..... ₱ doz $1.00, dis 40&10
Patent sewing, long ..... $1.20 ₱ doz net
Patent peg, plain top, ..$10.00 ₱ gro., dis 45&10
Pat. peg, leather top. ...$12.00 ₱ gro., dis 45&10

Awls, Brad Sets, &c.

Awls, Sewing, Common ..... ₱ gross $1.70—dis 35
Awls, Shouldered Peg ₱ gross 2.45—dis 40@40&10
Awls, Patent Peg ..... ₱ gross 63c—dis 40@40&10
Awls, Shouldered Brad ..... $2.70 ₱ gross—dis 35
Awls handled brad ..... $7.50 ₱ gro dis 45
Awls handled, scratch ..... $7.50 ₱ gro dis 35&10
Awls, socket scratch ..... $1.50 ₱ doz dis 25@30
Brad Sets, No. 42, $10.50; No. 43, $12.50 ..... dis 70&10&5
Brad Sets, Stanley's Excelsior, No. 1. $7.50 ..... dis 30&10

Axes.

Best grades ..... ₱ doz $6.50 to $7.00
Special Brands ..... 5.50@6.00

Axle Grease.

Frazier's, in bulk ..... keg ₱ lb 5c; pail 6c net
Frazier's, per gross ..... $9 00@$9.50
Mica Axle Grease ..... $8.50 per gross
Mica Axle Grease in bulk ..... 4c per lb

Axles.

Nos. 1 to 6 ..... dis 50&10@60
Nos. 7 to 12 ..... dis 60&5@60 10
Nos. 19 to 22 ..... dis70&5@70&10

Bag Holders.

Sprengle's pat., ₱ doz $18 ..... dis 60

Balances.

Spring balances ..... dis 50
Common 24 lb ..... ₱ doz $1.50 dis 50

Bells.

Hand, light Brass ..... dis 75&10
Hand, Extra Heavy ..... dis65& 10 to 70
Hand, White Metal ..... dis70@70&5
Hand, Silver Chime ..... dis 25&10&5
Hand, Globe (Cone's Patent). ..... dis 25&10
Gong, Abbe's ..... dis 25&10
Gong, Yankee ..... dis 40&10
Gong, Barton's ..... dis 40&10@50
Pull, western ..... dis 25&10
Cow, common, wrought ..... 60&10
Cow, western ..... Sargent's List 70&10
Call ..... dis 40@40&5
Farm bells ..... ₱ lb 2¾@3c
Steel alloy, church and school ..... dis 40

Bellows.

Discount.
Blacksmith's ..... 50&10@60
Moulders, ... discount 50@50 & 5
Hand, ... discount 50@50 & 5

Belting, Rubber.

Standard ..... dis 70&5@70&10
Extra ..... dis 60@60&10
N. Y. Belting & Packing Co. standard.. dis 60&10
N. Y. Belting & P'king extra standard dis 50&10
Cleveland Rubber Co., extra standard...dis 60&10
Extra 5 dis on all for Cash.

Bench Stops.

Hotchkiss's ₱ doz $5.00 ..... dis 10@10&10
Weston's ₱ doz No. 1, $10.00; No 2, $9 ..... dis 25&10&5
McGill's ..... ₱ doz $3.00 dis 10
Morrill's ..... ₱ doz ..... $9.00 dis 50

Bit Holders.

Extension, Barber's ..... ₱ doz $15 00, dis 40&5
Diagonal ..... ₱ doz $24.00 dis 40
Angular ..... ₱ doz $24 00, dis 40&5

Blind Adjusters.

Domestic ..... ₱ doz $3.00 dis 30
Excelsior ..... ₱ doz $10.00 dis 50 and 10 and 2

Blind Fasteners.

Mackrell's ..... ₱ doz. pairs, $1,00—dis 20@20&10
Van Sand's Screw Pattern $15 ₱ gross—dis 50&10
Van Sand's Old Pattern.....$15 ₱ gross—dis 50&10
Washburn's Old Pattern ..... $9.00 ₱ gross, net
Merriman's ..... new list, net
Salisbury & Austin No, 2008 ..... $9.00 ₱ gross, net
Security Gravity ..... $9.00 ₱ gross, net

Blind Staples.

Barbed ½ inch and larger ..... ₱ lb 8@8½c net
Barbed ⅝ inch ..... ₱ lb 9@9½c net

Blocks.

Tackle blocks, &c., list April 17, 1885 ..... dis 40
Reed Mfg. Co. self-lubricating ..... dis 50

Bolts.

Cast iron barrel bolts ..... } 70 to 70&5
Cast Iron shutter bolts, etc. ..... } 70 to 70&5
Cast iron chain bolts ..... } .....65&10
Ives patent door bolts ..... } 55
Wr't iron barrel bolts ..... } 70 to 70&5
Wrought iron square bolts ..... } 70 to 70&5
Wrought shutter bolts ..... } 20&10
Carriage com. new list ..... Sargent's list
Tire, common, new list ..... 75&10&5to20&5
Carriage and tire, Philadelphia pattern ..... 65&10
Stove bolts ..... 75&10&5@80 [&10&5
Plow bolts 70
Machine 65
Bolt Ends ..... 75&10&5@80
Bolt Ends ..... dis 75&10&5@80

Borax.

₱ lb ..... 8½c@9c

Boring Machines.

Without augers.	Upright	Angular
Douglas	5 50	6 75 dis 50
Snell's, Rice's patent	5 50	6 75 dis 40&10&10
Jennings	5 50	6 75 dis 45@45&10
Other machines	2 50	3 00 .....net
Phillips, with augers	7 00	7 50, ...net

Bow Pins.

Humason, Beckley & Co.'s, Nos. 1 and 2 dis 60 and 10@60 and 10 and 5
Humason, Beckley & Co.'s other Nos. dis 70@70 and 10
Sargent & Co.'s ..... $17 and $18, dis 60 and 10
Peck, Stow & W. Co dis 50 and 10@50 and 10 and 5

Braces.

Q. S. Backus ..... discount 60&5
Barber's ..... discount 50
Spoffard's Patent ..... discount 50&10
Common Ball. American..... 8½ in $1.30-10 in$1.50
Bartholomew's Nos. 25, 27, 30 dis 50&10@50&10&10
Bartholomew's Nos. 117, 118, 119 .....dis 65@65&5
Amidon's Barker's imp'd..... dis 60@10&5
Amidon's corner brace ..... dis 40@40&10
Universal ..... 8 inch $1.90; 10 inch $2.10
Buffalo Ball ..... 8 inch $1.35@$1. 40

Brackets.

Shelf, plain, Sargent's list, ... 55&10
Fancy " " ..... dis 60&10
Reading, plain ..... dis 60&10
Reading, rosette ..... dis 65&10

Bright Wire Goods.

Regular List. ..... 75&10@75&10&5

Broilers,—Henis' self basting.

Inch	9	10	9x11
Per doz	$4 50	5 50	6 50

Buckets, Galvanized.

Hill's ₱ doz ..... 12qt 3 50.....14qt 4 50
Iron clad 14 qt $8 ..... dis 00

Bull Rings.

Union Nut Co. ..... dis 55
Sargent's ..... dis 66⅔&10
Hotchkiss' low list ..... dis 30
Humason, Beckley & Co.'s ..... dis 70&10
Peck, Stow & W. Co.'s ..... dis 50&10
Ellrich Hardware Co., white metal low list dis 50

Butts.

Discount
Wrought brass ..... 75&10&10
Cast brass, loose joint..... 33⅓&10to33⅓&10&10
Cast Iron—
Fast joint, narrow ..... 60&5@60&10&5
Fast joint, broad ..... 60&5 to 60&10&5
Loose joint ..... 70@70&10
Loose joint, jap.....? ..... 70@70&10
Loose joint, jap. with acorns ..... 70@70&10
Loose pin, acorns ..... 70@70&10
Loose pin. japanned acorns ..... 70@70&10
Loose pin, acorns, japanned, plated tips 70@70&10
Wrought iron—
Wrought, fast joint narrow ..... 65&2
Wrought, fast joint broad ..... 65&2
Wro't loose joint broad ..... 65&5&2
Table Butts. back flaps, etc. ..... 65&2
Regular inside blind ..... 65&2
Light inside blind ..... 65&2
Loose pin ..... 65&5&2
Light loose pin ..... dis 65&2
Gem spring hinges 30
Blind butts, Parker ..... dis 75&2
Blind butts, Palmer ..... dis 50&5&10
Blind butts, Seymour ..... dis 70&2
Blind butts, Lull & Porter ..... dis 80&10
Blind butts, Nicholson ..... dis 45&10
Blind butts, Huffer ..... dis 50
Blind butts, Clark's Nos. 1, 3, 5 ...dis80&5@80&10
Blind butts, Manhattan Hardware Co.....dis
Blind butts, Sargent Nos. 1, 3 ..... dis 75&10
Blind butts, Sargent's No. 12 ..... dis 75&10&10
Blind butts, Reading's Gravity ..... dis 75&10
Blind butts, Shepard's "Noiseless" Nos. 50 60, 65, 45, 55 ..... dis 75&10@80
Blind butts, Shepard's Champion Gravity, No 75 ..... dis 80&5&5
Blind butts, Shepard's "Gravity," Nos. 1, 3 and 5 ..... dis 80
North's automatic blind fixtures, No. 2 for wood, $9 00; No. 3 for brick, $10 50
Shepard's "O.S" and "Acme," Lull & Porter ..... dis 75&10&5
Shepard's "Queen City" reversible ..... dis 75&10
Clark's imp'd shutter hinge, Nos. 0, 1, 1½, 2, 2½, 3 ..... dis 70

Butcher's Cleavers.

Humason & Beckley Mfg. Co..... dis 30&5@30&10
Bradley's ..... dis 25@30
Beatty's ..... dis 33⅓&5

1	2	3	4	5	6	7	8
$16 50	19 00	21 50	24 00	27 00	30 00	33 50	36 50

New Haven Edge Tool Co.'s ..... dis 40
Albertson Mfg. Co. ..... dis 33⅓@33⅓&5

Can Openers.

Sprague No. 1 $2.00, 2 $2.25, 3 $2.50, dis60@60&10
Universal ..... ₱ doz $3 00, dis 35&5
Domestic ..... ₱ doz $2 50, dis 45
Champion ..... ₱ doz $2 00, dis 50

Caps—Percussion, ₱ 1000.

Hicks & Goldmark's
F. L. Waterproof, 1-10's ..... 50c } dis 25@25
E. B. Trimmed Edge, 1-10's 65c
E. B. Ground Edge, Cent. Fire, 1-10's 70c
Double Waterproof, 1-10's 1.40
Musket Waterproof, 1-10's 50c
G. D. 28
Elys waterproof central-fire $1.60

Cartridges.

Rim fire ..... discount 60&2
Pistol and rifle ..... discount 40&2
Military and sporting ..... discount 30&2

Cards.

Horse and Curry ..... dis 10@10&10
Cotton ..... new list, Aug., 1883, dis 10
Wool ..... new list, Aug., 1883, dis 10

Carpet Stretchers.

Cast steel, polished ..... ₱ doz $ 3.25
Cast iron, steel points ..... ₱ doz80
Sockets ..... ₱ doz $ 1.75
Bullard's ..... dis25@25&10

Cattle Leaders.

Humason, Beckley & Co.'s ..... dis 75
Sargent's ..... dis 66⅔&10
Hotchkiss ..... dis 30
Peck, Stow & W. Co. ..... dis 50&10

Carpet Sweepers.

Queen ..... ₱ doz $16.00
Mystic ..... ₱ doz $17
Cottage ..... ₱ doz $15
Queen, with band ..... ₱ doz $18
King ..... ₱ doz $30
Garland ..... ₱ doz $19

Casters.

Bed } dis 60@60&5
Plate } dis 60@60&5
Shallow Socket } dis 60@60&5
Deep Socket ..... dis 45 to 50
Yale Casters, redu. list May, 1884, dis 25@25&10&5
Martin's patent ..... dis 45&10 to 50
Payson's Anti-friction ..... dis 60

Chains.

Trace, 6½-10-2 ..... ₱ pair 79c } dis 50&10to50&10&5
Trace, 6½-10-3 ..... ₱ pair 70c } dis 50&10to50&10&5
Trace, 7-10-2 ..... ₱ pair 86c } dis 50&10to50&10&5
German Halter Chain, list June, 1884, dis55&5@60
German Coil, list of June, 1881 ..... dis55&5@60
Galvanized Pump Chain ..... ₱ lb 5½ to 6c
Jack Chain, Iron ..... 75@75&10
Jack Chain, Brass ..... dis75@75&10

Chalk.

White ..... ₱ gross 55c
White Crayon ..... ₱ gross 12@12½

Chisels.

Socket Framing, and Frmer ..... dis 75@80
Socket Framing and Firmer, Buck, Bros..... dis 30
Socket Firmer & Framing, L. & I. J. White ..... dis 25 & 5
Tanged Firmers ..... dis 50 to 50&5

Clamps.

Snow's adjustable, iron ..... dis 40&5
Hammer's adjustable, iron ..... dis 15
Sargent's cabinet, iron ..... dis 66⅔&10

Clips.

Axle and spring bar, Norway iron ..... dis 65&2
Wrought-Iron felloe clips ..... ₱ lb. 5½c
Steel felloe clips ..... ₱ lb. 5c

Cockeys.

discount 50

Coal Vases.

Buffalo Palace, S. S. & Co ..... dis 33⅓&10&10
Buffalo Common, S. S. & Co..... dis 33⅓&10&10

Cocks, Brass.

Racking ..... dis 65&10@70
Globe ..... dis 65&10@70
Plain Bibbs ..... dis 60&10@60&10&5
Ale and Beer ..... dis 60&10@60&10&5

Coffee Mills.

Enterprise ..... 20 & 10@30

Compasses, Dividers, &c.

Compasses ..... dis 60&10&10@70
Calipers ..... dis 60&10&10@70
Dividers ..... dis 60&10&10@70
Bemis & Call Co.'s Dividers ..... dis 60&5
Bemis & Call Co.'s Compasses & Calipers..dis 50&5
Bemis & Call Co.'s Wing & Inside or Outside ..... dis 50&5
Bemis & Call Co.'s Double ..... dis 60
Bemis & Call Co.'s (Call's Patent Inside)..... dis 30
Excelsior ..... dis 50
Cook's Extension ..... dis 20@20&5
J. Stevens & Co.'s Calipers and Dividers ..... dis 25&10

Coopers' Tools.

Bradley's ..... discount 20
Barton's ..... discount 20 to 20&5
L. & I. J. White ..... 20 & 5

Corkscrews.

Humason, Beckley Mfg. Co. ..... dis 40
Clough's patent ..... dis 33⅓@33⅓&5
Howe Bros. & Hulbert ..... dis 35

Corn Knives.

Corn knives, Bradleys ..... dis 10

Cradles.

Grain ..... dis 40&5&2

Crowbars.

Cast steel ..... ₱ lb 3¾
Iron, steel points 3½

Curry Combs.

Fitch's ..... dis 50&10@50&10&5
Rubber ..... ₱ doz. $10.00, dis 25@30

Curtain Pins.

Silvered glass ..... net
White enamel ..... net

Cutlery.

Beaver Falls ..... dis 33⅓
Goodell table ..... dis35@ 40

Dog Collars.

Embossed gilt ..... dis 30&10
Leather ..... dis 40

Door Springs.

Torrey's Rod, regular size ..... ₱ doz $1.45 to $1.50
Gem (Coil);
No. 1, Large Japanned ..... ₱ doz. $4.00 } dis 50&10
No. 2, Medium Japanned ..... ₱ doz 2.75 } dis 50&10
No. 3, Small Japanned ..... ₱ doz 2.00 } dis 50&10
Japanned and coppered dis60
Galvanized and nickel plated ..... dis 50
No. 4, Screen Door size ..... ₱ doz. 1.50 }
No. 5, Screen Door size, ... ₱ doz. 2.00 }
No. 6, Medium ..... ₱ doz. 2.75 }
No. 7, Large ..... ₱ doz. 4.00 }

Drawing Knives.

Douglass & Witherby ..... dis75@75&10
Merrill ..... dis 60&10&10
L. & I. J. White ..... dis 20 & 5
Adjustable handle ..... dis 20 to25

Drills and Drill Stocks.

Blacksmiths' each ..... 1.60@1.70
Blacksmiths' self-feeding, each...$7.50 discount 20
Breast, P. S. & W. ..... discount 40 & 10
Breast, Millers Falls ..... each, $3.00 discount 25
Ratchet, Weston's ..... 20@25
Automatic Boring Tools ..... each, $1.75 to $1.85

Drill Chucks.

Morse's Beach Patent ..... each, $8.00, discount 20
Morse's Adjustable ..... each, $7.00, dis 20 to 20&5

Dripping Pans.

Buffalo, S. S. & Co. ..... ₱ lb. 5@5½c

Egg Beaters.

Dover ..... per doz. $2.50
Acme ..... per gross $8.00

Emery.

Regular numbers ..... ₱ lb 7c
Flour and F. F ..... ₱ lb 6½c
For emery paper and cloth, see sand paper.

Escutcheon Pins.

Iron ..... dis 50&5
Brass ..... 50&5

Escutcheons.

Door Lock ..... Same discounts as Door Locks
Brass Thread ..... dis 60 to 60&10
Wood ..... dis 25

Faucets.

Frary's Patent Petroleum ..... dis 33⅓ & 10
Cork Lined ..... dis 70 to 70&10
Self-measuring, Enterprise, per doz $36 dis 20&10

Felloe Plates.

₱ lb. ..... 6½c net.

Fly Traps.

Paragon ..... ₱ doz $2 00

Files.

J. & Riley Carr, new list April 1,1883, ... dis 15
J. & Riley Carr horse rasps ..... dis 10
Best files of domestic make, according to brand ..... dis 55&10@55&10&5
Lower grade domestic files ..... dis 70
Heller's horse shoe rasp ..... dis 50&10

Forks

Hay, Manure and Spading, list dis60&10&5@60&10
Phila list ..... 60@60&5

Fruit and Jelly Presses.

Enterprise Mfg. Co. ..... dis 20&10@33⅓

Fry Pans.

Central Stamping Co.'s list ..... dis 33⅓&2

No	6	7	8	9	10	11	12	14
₱ doz.	$1 50	1 75	2 00	2 25	2 50	2 75	3 25	3 75 4 25

S. S. & Co. ..... dis 40&2
"Acme" ..... dis 60

Fluting Scissors.

Discount ..... '45

Fluting Machines.

Eagle 3¼ inch ..... $2.15, dis 35
Geneva Hand Fluter, White Metal.. ₱ doz. 12.00 ..... dis 25
Shepard hand, Nos. 85 $15.30, 95 $8, 110 $11 dis 40
Knox, 4½ inch rolls ..... $3 25 each } dis 35
Knox, 6 inch rolls ..... $3 60 each } dis 35
Crown, 4½ in. $3 50; 6-in. $4 00; 8-in. $6 00 each ..... dis 35
Crown Jewel ..... 6-in. $3 50 each, dis 35
American, 5-in. $3; 6-in. $3 40; 7-in. $4 50 each ..... dis 35
Crown hand fluter, Nos, 1 $15; 2, $12 50; 3, $10 ₱ doz ..... dis 30

Gauges.

Marking ..... dis 60&10
Wire ..... dis 10&10
Wire, Wheeler, Madden & Co. ..... dis 10

Gimlets.

Nail and Spike ..... dis 50&10 & 5
"Eureka" Gimlets ..... dis 40&10
"Diamond" Gimlets ..... dis 40&10
Double Cut, Shepardson's ..... dis 45
Double Cut, Ives' ..... dis 50
Double Cut, Douglass' ..... dis 40
"Bee" ..... ₱ gross $12, dis 25

Glue Pots.

Tin enameled ..... dis 30@30&5
Family, Howe's ..... dis 40

Grindstone Fixtures.

Sargent's ..... dis 70&10

Gun Wads.

U. M. C. & W. R. A.—B. E., 11up...2 00 }
U. M. C. & W. R. A.—B. E, 9&10... 2 30 }
U. M. C & W. R. A.—B. E., 7&8.... 2 60 } dis 20&2
U. M. C & W. R. A.—P. E., 11up... 3 10 }
U. M. C. & W. R. A.—P. E., 9&10... 4 00 }
U. M. C. & W. R. A.—P. E., 7&8.... 4 90 }
Eley's B. E., 11 up 1 75
Eley's P. E., 11@20 ..... 2 80

Hack Saws.

Griffin's Hack Saws, complete ..... dis 40&10
Griffin's Hack Saw, Blades only ..... dis 40&10
Star Hack Saws and Blades ..... dis 25

Halters.

Covert's patent ½ jute ..... dis 50&10&2
Covert's hemp horse and cattle ties... dis 50&10&2
Covert's jute horse and cattle ties..... dis 60&2
Meneely's pat adjustable hemp and jute..dis 50&10
Meneely's hemp and jute horse and cattle ties ..... dis 50&10

Hammers.

Maydole's ..... discount 25@25&10
Cheney's new list, Dec 1,1885 ..... dis 20&10
Buffalo Hammer Co ..... dis 30@35
Magnetic Tack, No. 1, 2, 3, $1.25, $1.50 and $1.75, dis 25&10
Heavy hammers and sledges ..... dis 60&10

Hand Cuffs and Leg Irons.

Providence Tool Co., hand cuffs, $15 ₱ doz...dis 10
Providence Tool Co., leg irons $25 ₱ doz..... dis 10
Towers ..... dis 25
Daley's improved hand cuffs; 2 hands, polished, ₱ doz. $48; Nickeled, $57; 3 hands polished, ₱ doz $72; Nickeled, $84 ..... dis 20

Handles—

Door or Thumb Latches.

Per doz Nos.	0	1	2	3	4	
Sargent's	.90	1 00	1 18	1 35	1 50	dis 60&10 & 10

Roggin's Latches ..... ₱ doz. 30@35c
Bronze Iron Drop Latches ..... ₱ doz. 70c net
Jap'd store door handles—Nuts, $1 62; Plate $1 10; no plate $0 88 ..... net
Barn door ..... ₱ doz $1 40, dis 10&10
Wrought chest ..... dis 70
Surface chest ..... dis 70
Flush chest ..... dis 70
Lifting ..... dis 70
Saw and plane ..... dis 40&10
Hammer and hatchet ..... dis 35@35&5
Brad awl ..... ₱ gross $2 00
Hickory firmer chisel, assort ..... ₱ gross $4 50 }
Hickory firmer chisel, large ..... ₱ gross $5 00 } dis 40
Apple firmer chisel, assorted ..... ₱ gross $5 00 }
Apple firmer chisel, large ..... ₱ gross $6 00 }
Socket firmer chisel, assorted..... ₱ gross $3 00 }
Socket framing chisel, assort ..... ₱ gross $5 00 }
File, assorted ..... ₱ gross $2 75 } dis 40
Auger, assorted ..... ₱ gross $5 00 } @40&10
Auger, large ..... ₱ gross $7 00 } @40&10

Hangers.

Barn Door, old patterns ..... dis 60&10 &10
Barn Door, New England ..... dis 60&10&10
Climax (Anti-Friction) ..... dis 55
Zenith Ann-Friction Wood Track ..... dis 55
Reed's Steel Arm ..... dis 40
Challenge ..... dis 50
"Champion" Medina Mfg. Co. ..... dis 60
Sterling Improved (Anti-friction) ..... dis 60&10
Victor, No. 4, $15; No.2, $16.50; No. 3, $18.. dis50&
Cherritree ..... dis 50 &
Kidder's ..... dis 50&10@50&10
U. S. ..... 4 in., $12; 5 in., $15, dis 60&10
The "Boss" ..... dis 60
Terry's Patent 5 in., 12.00; 3½ in., 10.00, dis 40&5 @40&10
Cronk No. 4, 12.00; No. 5, 14.40; No. 6, 18.00, ... dis 50&5@50&10
Architect ..... ₱ set 6.00, dis 20
Eclipse ..... dis 20&10
Felix ..... ₱ set 4.50, dis 20
Hamilton Wrought ..... dis50@50&10

Harness Snaps

German, old list ..... dis 75
Meneely's Pat. Safety new list ..... dis60&10
Covert, New Patent, new list ..... dis 50&2

Hay Knives.

Lightning ..... per doz. $18 dis 20
Electric ..... ₱ doz $10@12.00

Hinges.

Wrought Strap and T Hinges ..... 65&5&2
Screw, hook and strap, 8 10 12 in ..... 3½@4
14 to 36 in ..... 2½@3
Screw hoop & eye hinges...½ ₱ doz 1.50 }
⅝ 2.45 } ...dis 10
¾ 3.80 }
Gate, western ..... ₱ doz $4 40, dis 55
Gate, N. E. ..... ₱ doz $7 00, dis 55
Gate, N. E. reversible ..... ₱ doz $5 20, dis 55
Gate, Clark's, Nos. 1, 2, 3 ..... dis 60&10&2
Gate, N. Y. State ..... ₱ doz $5 00, dis 55
Gate, automatic ..... ₱ doz $12 50, dis 50
Gate, common sense ..... ₱ doz pair $4 50, dis 50
Gate, Seymour's ..... dis 45&10
Am. Spring Hinge Co. 30

Hollow-Ware.

Stove Hollow-Ware, Ground ..... dis 50&5@50&10
Enameled and Tinned Hollow-Ware
Kettles ..... dis 50&10
Oval Boilers, Saucepans ..... dis 30@30
Gray Enameled Ware ..... dis40@40&
Rustless Hollow-Ware ..... dis 50@50&5
Galvanized Tea-Kettles

Inch	6	7	8	9
Each	5	60	65	75

TRAVELERS' REGISTER.

[Standard Time.]

Lake Shore & Michigan Southern Railroad.

TRAINS GOING EAST.	Arrive from West.	Depart East.
No. 4, Fast Limited Ex.....	*2 55 a m	*3 05 a m
No. 8, N. Y., B't'n & At. Ex	*8 25 a m	*8 50 a m
No. 26, Elyria Accom.....	†7 45 a m	.....
No. 24, Toledo & Buffalo Accom. via Sandusky.....	†10 30 a m	†10 50 a m
No. 24, Toledo Accommodation via Norwalk.....	†10 30 a m	†10 50 a m
No. 12, N. Y. & Bos. Ft. Ex.	*2 10 p m	*2 45 p m
No. 14, Special N. Y. Exp.	p m	3 00 p m
No. 2, Night Ex. via Norw'k	9 40 p m	†10 00 p m
No 26, Conneaut Accom.....	.....	†4 25 p m
TRAINS GOING WEST.	**Arrive from East.**	**Depart West.**
No. 1, Fast Limited Ex.....	*12 15 a m	*12 25 a m
No. 23, Mich. Ex. via Sand'y	*2 15 a m	
No. 3, Chi. Ex. via Sand'y..	‡6 00 a m	†6 30 a m
No. 25, Mich. Ac. via Norw'k	.....	†6 30 a m
No. 21, Toledo Ex. via Norwalk and Sandusky.....	†12 50 p m	†3 20 p m
No. 5, Fast St. Louis & Chicago Ex. via Sandusky.....	10 50 a m	*11 00 a m
No. 9, Chi. Pac. Ex. via Nor'k	*6 15 p m	*6 40 p m
No. 31, Elyria Accommodation, to Elyria only.....	.....	†4 30 p m
No. 27, Conneaut Accom.....	†8 10 a m	.....

Sunday train for Nottingham—Depart 8:15 a. m. and 1:45 p. m.; returning, leave Nottingham at 8:50 a. m. and 3:45 p. m.

Reference marks—*Daily. †Daily except Sunday. ‡Daily except Monday.

A local Cleveland and New York Sleeper daily on No. 12, leaving Cleveland at 2:45 p m, arrives Grand Central Depot, New York, 10:30 a. m.

For further information as to trains and connections apply at the Union Ticket Office, corner Bank and Superior sts., under Merchants' Bank.

Cleveland, Columbus, Cincinnati & Indianapolis.

DEPARTURE

No. 3, Col. Cin. & Ind. Ex	7 00 A. M
No. 5, Col., Cin. Ind. and St L. Ex.....	*10 55 A. M
No. 9, Col., Cin., Ind. and St. Louis Ex.*	7 00 P. M
No. 23, Grafton & Wheeling Ex	6 45 A. M
No. 27, Columbus Accommodation	3 30 P. M
No. 29, Massillon and Uhrichville Ex.....	4 10 P. M

ARRIVALS.

No. 2, Col., Cin. Ind and Mattoon Ex....	9 50 P. M
No. 4, Col., Cin. & St. Louis & Ind. Ex*	2 55 A. M
No. 8, Col., Cin., Ind. and St. Louis Ex.	*7 30 A. M
No. 24 St. Louis, Ind. & Col. Ex.....	*2 25 P. M
No. 22, Massillon and Uhrichville Ex....	10 00 A. M
No. 20, Galion Accommodation.....	9 00 A. M
No. 12, Columbus and Cincinnati Ex...	*2 35 P. M
No. 26, Wheeling Express.....	6 35 P. M

*Daily .all other trains daily except Sunday.

Cleveland & Pittsburg.

	DEPART.	ARRIVE.
Mail.....	7 50 a m	1 00 p m
New York Express.....	2 10 p m	6 25 p m
Alliance Accommodation.....	3 45 p m	10 10 a m
Ravenna Accommodation...	4 50 p m	8 15 a m
Night Express.....	11 10 p m	6 00 a m
Newburg Accommodation...	10 15 a m	11 30 a m
Newburg Accommodation...	12 10 p m	1 30 p m

Train leaving at 2 10 p m has Pullman Buffet Sleeper from Cleveland to New York without change.

New York, Pennsylvania and Ohio.

	ARRIVE.	DEPART.
N. Y. & Pitts. Express.....	16 10 a m	*8 25 a m
N. Y. & Pitts. Express.....	*6 35 p m	†11 10 p m
Fast N. Y. & Pitts. Express..	*10 50 a m	*3 00 p m
Mahoning Accommodation...		†7 00 a m
Pittsburgh Local Express...	† 10 40 p m	
Youngstown Local.....	†8 20 a m	
Mahoning div. and Pitts Local		*12 05 p m
Mahoning Val Accom.....		*4 25 p m
Pittsburgh accomodation.....	*1 30 p m	

* Daily. † Daily except Sunday. ‡ Daily except Monday.

Cleveland and Canton Railroad.

Arrive.—Canton, Sherrodsville and Coshocton 10 00 a.m., 6 50 p.m.
Kent —*7 50 a.m., 10 00 a.m., 6 50 p.m.
Bedford—6:00 a.m., *7:50 a.m., 10:00 a.m., 1:05 p.m., 6 40 p.m., 6 50 p.m.
Newburgh and Miles avenue—6-00 a.m., *7:10 a.m., *7:50 a.m., 10:00 a.m., 1 05 p.m., 4:25, p.m. 6:40 p.m., 6.50 p.m., 9:25 p.m.
Depart—
Canton, Sher'dsville & Cosh't'n—7:00 a.m. and 3:10 p.m.
Kent—7:00 a.m., 3:10 p.m., *6:00 p.m.
Bedford—7.00 a.m., 11:10 a.m., 3:10 p.m., 4:56 p.m., *6:00 p.m., 10:35 p.m.
Newburgh and Miles Avenue—6:12 a.m., 7:00. a.m., 11:10 a.m., 2:00 p.m., 3:10 p.m., 4:50 p.m., *6:00 p.m., 8:10 p.m., 10:35 p.m.
Zanesville, Newark, etc., 7:00 a.m., 3:10 p. m.
Theater train leaves Cleveland at 10:35 p.m., and runs through to Bedford.
Trains marked with * run daily. All others daily except Sunday.
Depot at Ontario street, opposite Huron street

N. Y. C. & St. L. R'y.—"The Nickel Plate."

EASTWARD.	ARRIVE.	DEPART.
Buffalo Passenger.....	10 40 a m	10 45 a m
Chicago Passenger	9 02 p m	.....
Local Freight.....	11 45 a m	12 15 p m
WESTWARD.	**ARRIVE.**	**DEPART.**
Chicago Passenger.....	.....	6 45 a m
Postoria Passenger.....	4 46 p m	4 51 p m
Local Freight.....	12 20 p m	12 50 p m

Rocky River Accommodation departs 7 45 a. m.; 1 35 p. m.
Euclid Accommodation departs 6:24 a. m., 9:10 a. m., 5:05 p. m.
All trains daily, except Sunday.

Valley Railway.

	ARRIVE.
From Canton	10 10 a m
From Canton, Pittsburg and intermediate points	2 00 p m
From Valley Junc., Canton & Akron.	5 50 p m
	DEPART.
To Akron, Canton and Marietta.....	8 20 a m
To Mahoning Valley points.....	2 25 p m
To Akron, Canton & Valley Junc.....	5 00 p m

*Daily. †Daily except Sunday.
Trains leave depot, South Water Street.

Cleveland, Lorain and Wheeling.

	DEPART.	ARRIVE.
Wheeling Express.....	6 45 a m	6 35 p m
Uhrichsville Express.....	4 10 p m	10 00 a m

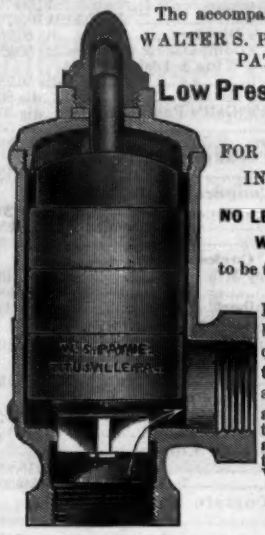
Engineers' Specialties. The Crescent Lubricating Compound and Automatic Grease Cups will effect a saving of 75 per cent. over oil. Investigate their merits. CRESCENT MF'G. CO., CLEVELAND, O.
24

CITY PLATING WORKS.
BEST WORK.
NICKEL PLATING.
LOWEST PRICES.
106 Canal Street, CLEVELAND, O.

CHARCOAL FURNACE
FOR SALE.

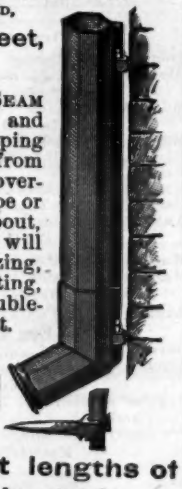
TWO STACKS. Situated at Nicollet, Wisconsin. For particulars apply to
ROGERS &CO.,
90 Dearborn Street,
CHICAGO, ILL

Payne's Patent
Low Pressure Safety Valve.

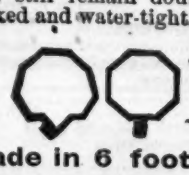


The accompanying cut shows WALTER S. PAYNE & CO.'S PATENT
Low Pressure Safety Valve
FOR STEAM HEATING BOILERS.
NO LEVER OR WEIGHT EXPOSED to be tampered with by children.
Put in the number of weights required to carry the amount of steam desired, and screw on the top. This top acts as a guide for the rod of the Valve, so it will ALWAYS *Seat Squarely.*
CAN BE REPAIRED BY TAKING OUT THE ACORN IN TOP OF COVER.
Send for Circular and Price Lists.
Walter S. Payne & Co.,
FOSTORIA, OHIO.
Mention this paper. 21

THE IRWIN & REBER
PATENT
EXPANDING WATER CONDUCTOR.
MANUFACTURED BY THE
S. S. S. Conductor Co.
LIMITED,
163 Lacock Street,
ALLEGHENY, PA.

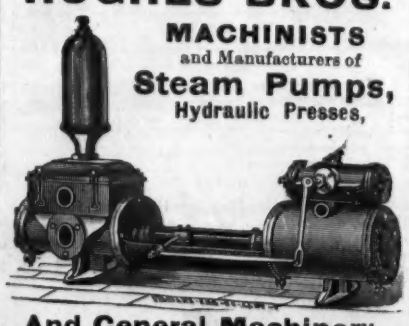


THE STANDING SEAM allows of an easy and secure fastening, keeping the pipe far enough from the wall to make any overflow from the eave pipe or head, run down the spout, and not the wall; and will open, in case of freezing, so as to prevent bursting, and still remain double-locked and water-tight.



Made in 6 foot lengths of a single sheet of
SOFT STEEL,
Galvanized, Kalamined or Leaded.

HUGHES BROS.



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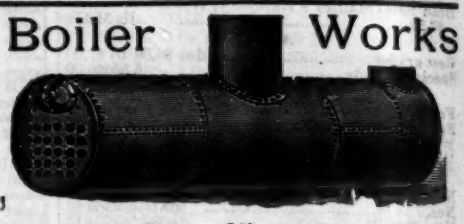
and Manufacturers of
Steam Pumps,
Hydraulic Presses,
And General Machinery.
10 Columbus Street, CLEVELAND, O.

ROOFING SUPPLY COMPANY
50 MERWIN STREET, CLEVELAND, OHIO.
Send for descriptive Circulars and prices. 21

The Neptune and Posidon Injectors

None more Reliable.
None Easier to take Apart.
None Cheaper.
Will work either under pressure or Lift.
Can be Adjusted over 60 per cent,
Will work under very low as well as high pressure.
For further particulars and prices Address
MARTY & WING, 20 Blackstone Building,
CLEVELAND, OHIO.

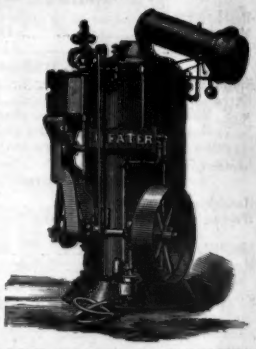
Enterprise Boiler Works
Beatty & Klipp,



Manufacturers of
All kinds of Steam Boilers,
Sheet Iron and Plate Work of all Descriptions, Oil and Water Tanks, Iron Roofing.
South Market Street, - - Youngstown, O.
Repairs Promptly and carefully attended to. Good Facilities for shipping.

THOMAS J. BELL & CO.,
General Machinists and Practical Engineers, dealers in
MACHINERY.
NEW AND SECOND-HAND.
Tools and Supplies.
Office and Warerooms:—S. E. Cor. Broadway & Second Street, Cincinnati, Ohio. 9

THE ARMSTRONG VERTICAL STEAM ENGINE
WITH HEATER AND STEEL BOILER.
The Best Engine Made



and will furnish MORE POWER with less fuel than any other engine OF SAME SIZE. The only Vertical Engine made having
An All Steel Double Rivetted Boiler.
Those who want an Engine of from TWO to FIFTEEN horse power, should send for our Illustrated Catalogue and Price List.
DO NOT BUY
until you see our low prices. Catalogues mailed to any address free. Address **Armstrong Bro. Engine Works**
Springfield, Ohio. 01eow

WINNER ROLLER SKATE.

AA—Hanger Plate.
B—Axle Clamp.
CC—Double Rubber Cushion.
D—Tension Screw.
E—Axle.

Light and Graceful in Design.
Perfect in Action, Strong and Durable.
Requires less repair than any other Skate made. Sample pairs to responsible parties for examination. A Liberal Discount to Rink Managers and Dealers. Name this paper.

A. L. Johnson & Co.,
SOLE MANUFACTURERS, MUNCIE, INDIAN.

Hoes.

Garden, mortar, ... dis60 and10&5
Planter's, cot, ... dis 60&10&5
Magic, ... ₱ doz $4.75
Grub, ... dis 60 and 10@60&10&5

Hog Rings and Ringers.

Perfect rings, ... ₱ doz boxes $2
Perfect ringers, ... ₱ doz $3
Blair hog ringers, ... ₱ doz $

Hoisting Apparatus.

"Moore's" hand hoist, with lock brake ..... dis 15
"Moore's differential pulley block, ... dis 20

Hooks.

Bird Cage, Sargent's list, ... dis 60&10&10
Belt, ... dis 80@80&10
Clothes Line Sargent's list, ... dis 66⅔&10
Ceiling Sargent's list, ... dis 60&10
Coat and Hat, Sargent's list, ... dis 60&10
Wire Coat and Hat, Gem, ... dis 45
Wrought Staples and Hooks & Staples, ... dis80&10@80&20
Wire Screw Hooks and Screw Eyes, ... dis 75&10@75&10&5
Hooks and Eyes—Malleable Iron, ... dis 70
Hooks and Eyes—Brass, ... dis 60&10&10

Horse Nails.

No.	10	9	8	7	6	5	
Ausable, ₱ lb	23	24	25	26	28	31	dis25&10
Putnam, ₱ lb	19	20	21	22	24	27	dis 5 & 7

Horse Shoes.

Burden at factory, ... ₱ keg $3.75
R. I. Horse Shoe Co., Perkins' Imp. at factory, ... ₱ keg $3 75
Walker's forged, ... ₱ keg $3 75
Mule Shoes, at factory, ... ₱ keg $4.75

Hose, Rubber.

dis ..... 75@75&5
N. Y. Belting & Packing Co. standard ..... dis 60@60&5

Ice Awls, Chisels, &c.

American Ice Chisel Pol'd, ... ₱ doz. $3.00, dis 20

Ice Cream Freezers.

Buffalo champion, S. S. & Co. ..... dis 60&2

Ice Tongs.

Champion ..... ₱ doz $4.00, dis 25&10
Family, ... ₱ doz $2.75, dis 20

Jack Screws.

Millers Falls list, ... dis 50

Kettles.

Brass, 7 to 17 inches inclusive, ... ₱ lb 22c. net.
Brass larger than 17 inches, ... ₱ lb 24c. net.
Enameled and Tea Kettles, ... See Hollow Ware

Keys.

Eagle, cabinet, trunk and padlock, ... dis 40 and 2

Knives.

Ames' Butcher, ... dis 25
Ames' Shoe Knives, ... dis 20@25

Knobs.

Carriage, Japanned, ... ₱ gross 80c, dis 60&10
Base, Rubber Tip, ... dis 70&10&5
Hemetite Door Knobs, new list, ... dis 35&5@35&10
Door Mineral, }
Door Por. Jap'd } Same discounts as
Door Por. Plat'd } Door Locks.
Door Por., }
Shutter, Porcelain, ... dis 65&10

Ladles.

Melting, Sargent's, ... dis 55&10
Melting, Reading, ... dis 35&10
Melting, Monroe's Patent, ... ₱ doz $4.00, dis 40
Melting, P. S. & W, ... dis 35@35&10

Lanterns.

Tubular Standard No. 0, ... ₱ doz 6.75@7.00
" " " 1, ... " 8.25@8.50
Guards for tubulars adds 25 cents per doz.
Tubular, Lift Wire, No. 0, ₱ doz, ... 8.50
Tubular, Lift Wire, No. 1, ₱ doz, ... 10.00
Police, Small, $6.00; Med., $7.25; Large, $9.75, ... dis10@15

Lemon Squeezers.

Porcelain lined, ... ₱ doz $6 00, dis 35&5
Wood, ... ₱ doz $3 00, dis 35
Eureka, tinned, ... ₱ doz $8 00, dis 10
Dunlap's improved, ... ₱ doz $3 75, dis 20
Sammis', ... No. 1, $5; 2, $9, 12, $18 ₱ doz dis25&10
Townsend's patent, ... $6 00 ₱ doz dis 33⅓
Jennings' "Star", ... $3 00 ₱ doz net
The "Boss", ... ₱ doz $4 00 dis 10&10
Dean's No. 1, ₱ doz $15 00; 2, $8 00; 3, $5 50, dis 55
Little giant, ... dis 50
Acme, ... ₱ gross $55 00, dis 50

Lines.

Cotton Chalk, ... dis 55
Silver Lake, Braided, Nos. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No, 3, $7.50 ₱ gross ..... dis 25
Masons' Linen, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50 Net
Masons' Colored Cotton, ... dis 45
Wire Clothes, No 18, $3.50; No 19, $3.00; No. 20 $2.50; .....

Locks, Bolts, etc.

[Nimick & Brittan Manufacturing Co., Pittsburgh].

Discount Sheet No. 8 [March 10, 1886].

Door locks, knobs and latches, ... dis 45
Escutcheons and keys, ... dis 45
Sash locks, ... dis 50
Padlocks and padlock keys, ... dis 70
Bell pulls, mineral, porcelain and jet, ... dis 45
Bell pulls, bronze plated, ... dis 45
Bell pulls, Egyptian bronze, ... dis 45
Bell pulls, genuine bronze, ... dis 50
Lever bell pulls, genuine bronze, ... dis 50
Butts, genuine bronze, ... dis 60
Butts, bronze plated, ... dis 70
Butts, Egyptian bronzed, ... dis 70
Store door locks and latches, ... dis 60
Store door handles, ... dis 60
Shutter hinges and flaps, genuine bronze, ... dis 60
Shutter hinges, bronze plated, ... dis 75
Shutter hinges, Egyptian bronzed, ... dis 75
Shutter flaps, bronze plated, ... dis 60
Shutter flaps, Egyptian bronzed, ... dis 60
Parliament butts, genuine bronze, ... dis 60
Parliament butts, bronze plated, ... dis 75
Parliament butts, Egyptian bronzed, ... dis 75
Flush bolts, genuine bronze, ... dis 60
Flush bolts, bronze plated, ... dis 75
Flush bolts, Egyptian bronzed, ... dis 75
Shutter knobs, genuine bronze, ... dis 60
Shutter knobs, bronze plated, ... dis 70
Shutter knobs, Egyptian bronzed, ... dis 60
Shutter bars, genuine bronze, ... dis 60
Shutter bars, bronze plated, ... dis 70
Shutter bars, Egyptian bronzed, ... dis 70
Sash lifts, genuine bronze, ... dis 50
Sash lifts, bronze plated, ... dis 70
Sash lifts, Egyptian bronzed, ... dis 70
Sash pulls and plates, genuine bronze, ... dis 60
Push plates, genuine bronze, ... dis 60
Drawer pulls, genuine bronze, ... dis 50
Drawer pulls, bronze plated, ... dis 70
Drawer pulls, Egyptian bronzed, ... dis 70
Letter box plates, genuine bronze, ... dis 50
Letter box plates, bronze plated, ... dis 60
Letter box plates, Egyptian bronzed, ... dis 60
Scales, ... dis 40
Thumb latches, Egyptian bronzed, ... dis 75
Barn door locks, ... dis 33⅓

Lumber Tools.

Ring peavies, "Blue Line" finish, ... ₱ doz $20 00
Ring peavies, common finish, ... ₱ doz $18 00
Steel socket peavies, ... ₱ doz $21 00
Mall. iron socket peavies, ... ₱ doz $19 00
Cant hooks, "Blue Line" finish, ... ₱ doz $16 00
Cant hooks, common finish, ... ₱ doz $14 00
Cant hook's mall. socket clasp, "Blue Line" finish, ... ₱ doz $16 00
Cant hooks, mall. socket clasp, common finish, ... ₱ doz $14 50
Cant hooks, clip clasp, "Blue Line" fin., ₱ doz $14
Cant hooks, clip clasp, common finish, ₱ doz $12
Hand spikes, ... ₱ doz 6 ft., $15 00; 8 ft., $20 00
Pike poles, pike and hook—

	12 ft.	14 ft.	16 ft.	18 ft.	20 ft.
₱ doz,	$11.50	$12 50	$14 50	$17 50	$21 50
Pike poles, pike only, ₱ doz,	$10 00	$11 00	$13 00	$16 00	$20 00
Pike poles, not ironed, ₱ doz,	$6 00	$7 00	$9 00	$12 00	$16 00

Setting poles, doz 14 00 $15 00 $17 00
Swamp hooks, ... ₱ doz $18 00
Landing blocks, ... ₱ doz $22 50
Skidding tongs, ... ₱ doz $51 00
Log binders, ... ₱ doz $26 00
Bended boot calks, 1 to 5 M, dis 25; 5 to 10 M, dis 30
Square steel boot calks, ... dis 40
Chain rafting dogs, ... ₱ 100 $12 50
Ring rafting dogs, ₱ 100, med., $10 00; large $12 00
Timber grapples, ... ₱ doz $30 00

Mallets.

Hickory, ... dis 20&10
Lignumvitæ, ... dis 20&10
Penfield Block Co., Lignumvitæ and Hickory, ... dis 30@30&10

Mattocks.

Regular list, ... dis 60&10

Meat Cutters.

Dixon's (P.S.&W.)	1	2	3	4	
₱ doz.	$14.00	$17.00	$19.00	$30.00	dis 45 @45&5

Draw Cut	Nos. 5	2	6	8	10	
Each	$50.00	$75.00	$80.00	$225.00	400.00	dis 20

Woodruff's (P S & W) per doz No 100 No 150 $15 $18 dis 45 [@45&5
Hale's—Nos. 11 12 13 $27 $33 $45 dis60&10&10@70
Mincing Knives.
Am. (2d quality), ₱ gro, 1 blade, $7; 2 blades, $12; 3 blades, $18, ... net
Lothrop's, ... dis 20&10
Smith's, ₱ doz. single, $2 00; double, $3 00 ..... dis 40@45
Cowles Hardware Co., ... dis 50@10@60

Money Drawers.

₱ doz., ... $18 00

Molasses Gates.

Stebbins' pat', ... dis 70&10@75&5
Stebbins' genuine, ... dis 66⅔&10
Stebbins' tinned ends, ... dis 40&10
Chase's hard metal, ... dis 50&10
Bush's, ... dis 20
Lincoln's pattern, ... dis 70&10
Weed's, ... dis 20&10

Boss Nos....	1	2	3	4	
	$7 00	8 00	9 00	10 00	₱ doz. dis 60&10&10

Nails.

Wire Nails, ... See trade report.

Nuts and Washers.

Square nuts ⅜ and smaller, ... 9½c off list
Square nuts, 7-16 and larger, ... 8½c off list
Hexagon nuts, ⅜ and smaller, ... 10½ off list
Hexagon nuts, 7-19 and larger, ... 9½ off list
Washers, ⅜ and 7-16 smallers, ... 9½c off list
Washers, 7-16 and larger, ... 8¾ off list
In lots less than 100 lbs., ₱ lb add ½c to list, 1 lb boxes 1c to list.

Nut Crackers.

Table (Humason & Beckley Mfg. Co.), ... dis 40
Blake's pattern, ... ₱ doz. $2 00, dis 10
Turner & Seymour Mfg. Co., ... dis 50

Oakum.

Government, ... ₱ lb 7c
U. S. Navy, ... ₱ lb 6½c
Navy, ... ₱ lb 5½c

Oilers.

Zinc and Tin, ... dis65&5@70
Brass and Copper, ... dis 50&10
Malleable (Hammer's), No. 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₱ doz., ... dis 10@ 10&10

Packing, Steam.

N. Y. Belting & Packing Co, ... dis 50@50&10
American Packing, ... 10@11c
Russia Packing, ... 14c
Italian Packing, ... 14@15c
Cotton Packing, ... 15@18c

Pencils.

Faber's Carpenters', ... high list, dis 50
Faber's Round Gilt, ... ₱ gro $5.25 net
Dixon's Lead, ... ₱ gro $4.50 net
Dixon's Lumber, ... ₱ gro $6.75 net
Dixon's Carpenter's, ... dis 40&10

Picks.

Railroad, 5 to 6 lbs, ... $11 dis 60&10
" 6 to 7 lbs, ... $12 dis 60&10

Pinking Irons.

₱ doz, ... 65c. net

Picture Nails.

Brass head, Sargent's list, ... } dis 50&10&10
Brass head, combination list, ... dis 50&10
Porcelain head Sargent's list, dis, ... 50&10&10
Porcelan ihead, combination list, ... dis 40&10

Plane Irons.

L. & I. J. White, ... dis 25

Pliers and Nippers.

Button's Patent, ... dis 30&10@40
Hall's Pat. Compound Lever Cutting Nippers, No. 2, 5 in., $13.50; No. 4, 7 in., $21 00 ₱ doz., ... dis 20&10@33⅓
Gas Pliers, ... dis 60
P. S. & W. Cast Steel, ... dis 50
P. S. & W. Tinners' Cutting Nippers add 6 per cent. dis 10

Plumbs and Levels.

Standard list, ... dis 70&10@70&10&10
Disston's, ... dis 45&10
Pocket levels, ... dis 70&10@70 &10&10
Davis' inclinometers, ... dis 10&10

Post Hole and Tree Augers.

Samson Post Hole Digger, ₱ doz. $36.00, dis 20&10
Fletcher Post Hole Augers, ₱ doz. $36.00, dis 20
Eureka Diggers, ₱ doz. $18.00 @ $21 00
Leed's, ... per doz $8.50 @ 9
Vaughan's Hollow Tube Post Hole, ... $24.00 dis33⅓&20&10&10

Potato Parers.

White Mountain, ... ₱ doz $5.50
Ar'rim Combination, ... ₱ doz $8.00
Hoosier, ... ₱ doz $13.50

Pruning Hooks and Shears.

Disston's Combined Pruning Hook and Saw ₱ doz $18.00, ... dis 20&10
Disston's Pruning Hook, ₱ doz $12.00 dis 20&10
E. S. Lee & Co.'s Pruner, ... dis 40
Pruning Shears, ... ₱ doz 3.75@$4.00 net

Pulleys.

Hot House, ... discount 66⅔&10
Japanned Screw, ... discount 66⅔&10
Brass Screw, ... discount 70&10
Japanned Side, ... discount 66⅔&10
Japanned Clothes Line, ... discount 60&10

Pumps.

Cistern, best makers, ... dis 50
Pitcher spout, best makers, ... dis 60
Pitcher spout, cheaper goods, ... dis 70@70&10

Punches.

Saddlers' or Drive, ₱ doz. good quality, 65@70c
Bemis & Call Co.'s Cast Steel Drive, ... dis 50&5
Bemis & Call Co.'s Springfield Socket, ... dis 50&5
Solid Tinners, ... ₱ doz. $1.44, dis 55

Rails.

Sliding Door, Wrought Brass, ₱ lb 35c dis 20@25
Sliding Door, Iron, Painted ₱ foot 4c dis 20&10&5

Rakes.

Cast Steel, ... dis60&10@60&10&10
Malleable, ... dis 60&10@60&10&10

Razors.

J. R. Torrey Razor Co., ... dis 20
Wostenholme & Butcher, ... $10 @ £ ... dis 10

Rivets.

Iron, in bulk, ... discount 45
Copper, ... discount 60&5@60&10

Rivet Sets.

..... dis 50&2

Rods.

Stair, Brass, ... dis 25&5
Stair Black Walnut, ... 50c ₱ doz.

Rollers.

Barn door, Sargent's list, ... dis 60&10&10
Acme (Anti-Friction), ... dis 55
Union barn door roller, ... dis 70

Rope.

Manufacturer's list Feb. 6, 1886.. dis 1c@1¼ ₱ lb
Manilla, ... ⅝ inch ₱ lb 13
Manilla, ... ¼ and 5-16 inch ₱ lb 13½
Sisal, ... ½ and larger, ... per lb 9
" ..... ⅜, ... per lb 9½
" ..... ¼ & 5-16, ... per lb 10

Rules.

Boxwood, ... discount 80&10

Sad Iron.

From 4 to 10 lbs at factory... per 100 lbs $2.35@2.50
Self-heating, ... ₱ doz $9 net
Self-Heating, Tailor's, ... ₱ doz $18 net
Gleason's Shield and Toilet, ... discount 25
Mrs. Potts's Irons, double pointed, ... dis 40@40&5
Mrs. Potts's Irons, square back, ... dis 40@40&5
Enterprise Star Irons, ... discount 40
Com. Fluter and Sad Iron, ₱ doz $15, discount 15

Sash Weights.

Per ton, ... $20

Saws.

Disston's Circular, ... discount 45&10
Disston's hand panel, rip &c., ... discount 20&10
W. M. & C., Champion Regular, ... per foot 26c
W. M. & C., " Thin Back, ... ₱ ft 29 c

Saw Frames.

White, Vermont, ... ₱ doz $1.50, dis 25&10
Red, polished and varnished, ₱ doz $1.50, dis 10
Saw rods, ... $10 list dis 10&10

Saw Sets.

Aiken's Genuine, ... $13.00, dis 50 &10
Morrill Saw Sets No. 1 $15.00; No. 3 and 4 $24.00 ..... dis 40 &10

Scales.

Hatch, Counter, No. 171, ₱ doz $42.00, dis 50&10
Hatch, Tea, No. 161, ₱ doz $15.00, dis 50&10
Chatillon's Grocers, ... dis 50
Family Turnbulls, ... dis 30@30&10
Scale Beams, List of January 12, 1882 ..... dis 60&5@60&10

Scrapers.

Adjustable Box Scraper (S. R. & L. Co.) $6.50, ... dis 20&10
Box, 1 Handle, ... ₱ doz $4.00, dis 10
Foot, ... dis 50&10@60

Screen Corners.

Porter's pat. window and door frame, ... dis33⅓
Screen corner irons, Warner's, ... dis 33⅓

Screw Drivers.

Stanley R. & L. Co.'s Varnished Handles dis 60&10
Stanley R. & L. Co.'s Black Handles, ... dis 50&10
Sets Interchangeable, ... ₱ doz $18.00 dis 25

Screws.

Wood Screws—List Feb 15, 1886.
Flat head iron, ... dis 75&10
Round head iron, ... dis 70&10
Flat head brass, ... dis 75
Round head brass, ... dis 70
Flat head bronze, ... 75
Round head bronze, ... 70
Machine, flat head, iron, ... dis 60
Machine, round head, iron, ... 55
Bench and hand—
Bench, iron, ... 55&10@55&10&10
Bench, wood, beech, per dozen $2.25, ...
Bench, wood, hickory, ... 20 & 10
Hand, wood, ... 25&10@25&10&5
Lag or coach, ... dis 75 & 10@80
Coach, patent gimlet point, ... 75@75&5
Bed, ... 25&5
Hand rail, Sargent's, ... 66⅔&10
Hand rail, Humason, Beckley & Co.'s, ... 70
Hand rail, Am Screw Co., ... 70

Shears.

American (Cast) Iron, ... dis75&10@75&10 & 5
Pruning, ... See Pruning Hooks and Shears
Barnard's Lamp Trimmers, ... ₱ doz $3.75
Tinners', ... dis 20&2
Heinsch's List, Dec. 1881, ... dis 60 &10
Heinsch's Tailor's Shears, ... dis 33⅓

Shovels and Spades.

Ames' list Nov 1 1885, ... discount 20
Griffith's black iron, ... dis 50&10
Griffith's steel, ... dis 60@60&5
Griffith's solid cast steel R.R. goods, ... dis 20

Scroll Saws.

Lester, complete, $10.00, ... dis 25
Rogers, complete, $4.00, ... dis 25

Tap Borers.

Common and Ring, ... dis 20&10
Ives' Tap Borers, ... Nos. 1, 2, 4—dis 15&10
Ives' Tap Borers, ... Nos. 10, 14—dis 25&10
Enterprise Mfg Co., ... dis 20&10

Sheaves.

Sliding Door M. W. & Co., ... list dis45&2
Sliding Door R. & E. list Dec 18, 1885, ... dis 60&2
Sliding Door, Patent Roller, ... dis 60&10&2
Sliding Door, Pat'nt Roller, Hatfield's, ... dis 70
Sliding Door, Russell's Anti-Friction Dec. 18, 1885 ..... dis 60&2
Sliding Door, Moore's Anti-Friction, ... dis 60
Sliding Shutter, R. & E. list, ... dis 60&10&2
Sliding Shutter, Sargent's list, ... dis 60&10&10
Sliding Shutter, Reading list, ... dis 60&10&10
Moore's Anti-Friction, ... New list, dis 60

Ship Tools.

L. & I. J. White, ... dis 20 & 5

Shovels and Tongs.

Iron and Brass Head, R. & E. list ..... dis 60&10&5@60&10&10
Iron and Brass Head, P. S. & W ..... dis 60&10&5@60&10&10

Sieves.

Buffalo metallic, S. S. & Co., new list, ... dis 50&20
Barler's flour sifters, ... ₱ doz $2 50

Slates.

School, by case, ... dis 45@50

Spoke Shaves.

Iron, ... dis 45
Wood, ... dis 20

Spoke Trimmers.

Bonney's, ... ₱ doz $10.00, dis 50
Stearns', ... ₱ doz $9.00 dis 20 &10

Spoons.

Basting Spoons, ... dis 33⅓&2
Britannia, ... dis60&10@60&10&10
Wm. Rogers Mfg Co., ... dis 50&10@60
H & E Silver Co. Steel Silver Plated, teas $15.00, Tables $30.00, ... dis 50@50&10
Tin, ... dis 10@20

Squares.

Steel and iron, ... } dis 70&5@70&10&5
Nickel plated, ... } dis 70&5@70&10&5
Try square and T bevels, ... dis 60&10
Disston's try square and T bevels, ... dis 45&10
Winterbottom's try and miter, ... dis 20&10

Steelyards.

..... dis 40&10@50&5

Stocks and Dies.

Blacksmith's, ... dis 30@30&5
"Lightning" screw plate, ... dis 10&10@25

Stone.

Hindostan, No. 1, 3¼c; Axe, 4¼c; Slips 5¼c
Sand Stone, ... ₱ lb. 2½c
Washita Stone, ... No. 1, ₱ lb 20
Turkey Oil Stone, ... 4 to 8 in., ₱ lb 60c
Turkey Slips, ... $2.00 ₱ lb
Lake Superior, ... ₱ lb 17c
Lake Superior Slips, ... ₱ lb 31@32c
Washita Slips No 1, ... ₱ lb 14
Washita No 2 stone, ... ₱ lb 16c
Arkansas Stone, ... 1 45@1 50

Stove Boards.

Buffalo zinc, S. S. & Co., ... dis 50

Stove Polish.

Joseph Dixon's, ... ₱ gross $6 00 dis 1
Gem, ... ₱ gross 4 50 dis 10
Gold medal, ... ₱ gross 6 00 dis 25
"Mirror", ... ₱ gross 6 00 dis —
Lustro, ... ₱ gross $4 75 net
Ruby, ... ₱ gross $3 75 net
Rising Sun, ... ₱ gross $5 75 net
Dixon's plumbago, ... ₱ lb 5c. net
Boynton's Noon Day, ₱ gro, ... $5 00;

Trowels.

Lothrops' Brick and Plastering, ... dis 20&10
Reed's Brick and Plastering, ... dis 15
Disston's Brick and Plastering, ... dis 20&10
Brade's brick, ... dis 25

Novelty Iron Works.

Nobles & Sherlock

PROPRIETORS,

IRON FOUNDERS

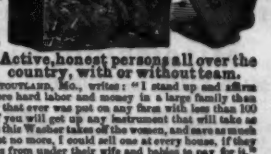
Architectural and General Jobbing Castings.

Light Gray Iron Castings a specialty

Also manufacturers of **COAL MINE CARS.** Correspondence Solicited.

84 CANTON, OHIO.

AGENTS WANTED for the MISSOURI STEAM Washer



Active, honest persons all over the country, with or without team.

JOHN C. EVANS, STOUTLAND, MO., writes: "I stand up and affirm that a Washer saves more hard labor and money in a large family than any Reaper and Mower that ever was put on any farm with less than 100 acres in cultivation. If you will get up any instrument that will take as much labor off of men as this Washer takes off the women, and save as much money as it does and cost no more, I could sell one at every house, if they had to take the feathers from under their wife and babies to pay for it."

JOHN R. DODGE, JR., jeweler, NORMAL, ILL., writes: "You ask what I think of the Washer I bought last summer. 1st. It is the best machine ever invented by man. 2d. We have just as good dinners on Monday as on any other day. 3d. If you run short, you can not buy ours for $1000."

I will ship a sample to these desiring an agency on a week's trial on liberal terms. A thousand per cent the best washer in the world for saving labor, clothes and soap. Pays capable agents big money. Write for particulars.

J. WORTH, 1710 Franklin Ave., St. Louis, Mo.

ECLIPSE ELECTROTYPE AND ENGRAVING CO. 147 ST. CLAIR ST. CLEVELAND, OHIO. ANDREWS & AUST PROPS

Chamfering, Howelling and Crozing.

Barrel, Keg, Hogshead, and Stave Machinery.

E. & B. HOLMES

Buffalo, N. Y

EDWARDS, TOWNSEND & CO.

Wholesale Grocers;

AND DEALERS IN

Wines, Liquors and Cigars,

Teas a Specialty.

NOS. 151 & 153 WATER ST.,

CLEVELAND, O.

Cleveland & Marietta R. R.

New Through Line Between the Ohio River and the Great Lakes.

The popular line to Chicago, St. Paul, Milwaukee, Minneapolis, and all points in the Great Northwest. Direct connection for the Pennsylvania Oil Fields and all points East and Southeast. December 6, 1885.

GOING NORTH. Exp. No. 2	Exp. No. 4	STATIONS.	GOING SOUTH. Exp. No. 3.	Exp. No. 1
am	pm		pm	pm
6 20	2 30	lv.....Marietta.....ar.	7 20	12 50
s6 43	2 56	.....Stanley.....	6 52	12 23
7 06	3 20	.....Warner.....	6 29	11 58
7 25	3 42	.....Macksburg.....	6 10	11 38
7 32	3 50	.....Dexter City.....	6 02	11 30
7 53	4 11	.....Caldwell.....	5 40	11 04
8 28	4 45	.....Mt. Pleasant.....	5 05	10 19
8 38	4 55	.....Byesville.....	4 55	10 02
8 50	5 10	.....Cambridge.....ar.	4 30	9 45
9 47	6 20	.....New Comerstown.....	3 27	8 47
10 28	6 55	.....Canal Dover.....	2 38	8 00
	pm			am
10 51	7 20	.....Valley Junction.....lv	2 12	7 35
			pm	pm
am	am	.....Valley Junction.....	11 48	8 35
11 39	7 58	.....Canton.....	10 58	7 52
pm	.....		am	pm
12 33	8 54	.....Akron.....	10 00	7 00
pm	am		am	pm
1 50	10 15	lv.....Cleveland.....ar.	8 35	5 40
pm	pm			
8 00	6 20	.....Buffalo.....		
pm	pm		pm	
1 10	10 05	.....Orrville.....	12 20	6 00
				am
1 55	10 45	.....Creston.....lv	11 50	5 30
2 40	11 28	.....Wellington.....	11 00	8 10
	am			
3 27	12 10	.....Norwalk.....	10 13	7 12
3 44	12 25	.....Monroeville.....	10 00	7 02
			am	pm
5 55	5 20	.....Toledo.....	7 50	5 00
pm	p m			
12 35	11 5	.....Columbus.....	.....	.....
am	am			
5 40	8 5	.....Chicago.....	.....	.....
pm	am			
3 30	6 00	.....Pittsburgh.....	.....	.....
am	pm			
7 00	6 55	.....New York.....	.....	.....

NO. 17. ACCOMMODATION.

	a.m		a.m
Cambridge.....	6 30	Macksburg.....	9 00
Byesville.....	6 55	Warner,.....	9 30
Pt. Pleasant.....	7 15	Stanley.....	10 02
Caldwell.....	8 17	Marietta.....	10 35
Dexter City.....	8 47		

s Stop on signal only.

Connections made with all lines at junction points for all important cities east and west.

A. T. WIKOFF, Receiver.

W. A. McCloy, Acting Gen. Pass. Agent.

Purchase your Tickets

VIA THE

Bee Line--C C.C.&I.

RAILWAY,

The Great Trunk Line

—TO THE—

South and West.

The only line from CLEVELAND with no change of cars to the

MISSISSIPPI RIVER.

SOLID TRAINS and THROUGH SLEEPERS to

ST. LOUIS,

Where direct connections are made in UNION DEPOT for all points WEST.

Practically no change of Cars to the

PACIFIC COAST.

The Only Line to

COLUMBUS and CINCINNATI

with complete through Train Service, making direct connections in UNION DEPOTS for all points in the

South and Southeast.

TOURIST TICKETS

To numerous points, including the

ROCKY MOUNTAINS.

FAST EXPRESS TRAINS DAILY,

NEW AND ELEGANT CARS,

A PERFECT ROADBED.

☞For low rates, and any information pertaining to railway travel in general, apply to

CITY TICKET OFFICE,

173 Superior Street, Cleveland, Ohio.

D. JAY COLLVER, Passenger Agent. J. D. BROWN, Ticket Agent.

A. J. SMITH, General Passenger Agent.

Howell's Patent Rain Water Cut Off

For turning water into or off from the cistern. The handle, which is an iron weight, insures the bucket remaining where placed, and entirely prevents its being turned by the downflow of water. The bucket or valve passes behind the rim at the top and overlaps at the bottom, thus securing perfect water joints at both connections. We manufacture all sizes from 2½ to 24 inches.

Packed in crates of one dozen each size up to 5 inch; 5 and 6-inch in crates of one-half dozen each; f.o.b.; no charge for crates. For sale by dealers all over the United States. **Recommended by Architects, Builders, Users, Everywhere.**

G. W. HOWELL,

02 Manufacturer, Covington, Ky.

HIGHEST PREMIUM AWARDED WHEREVER EXHIBITED

Worswick Mfg. Co.

MANUFACTURERS OF

Malleable and Cast Iron Fittings,

AND BRASS GOODS.

Jobbers of Plumbers', Gas and Steam Fitters' Tools and Supplies.

SOLE MANUFACTURERS OF

THE WORSWICK PATENT RADIATORS.

AGENTS FOR IRON PIPE AND BOILER TUBES.

Cor. Water and St. Clair Streets, 22 CLEVELAND, O.

York Manufacturing Co.'s Roller Skates.

Two New Styles just out.

They are the most complete Skates offered to the public.

THE DANDY.

The Dandy

Is the Lightest, Strongest, and Easiest running Skate in the market.

The Lilly is made of fine Spring Steel, nickel plated, half clamped, simple in design, easy running, strong and durable. Send for Circular and Price Lists, with special discount to Dealers, Rinks and Clubs.

York Manf'g Co., Limited,

14-3m PORTSMOUTH, OHIO.

THE MORSE

Automatic Inspirator

is acknowledged by all the leading mechanics and manufacturers to be

The Simplest, The most Positive, And most Perfect

IN USE. UNSURPASSED FOR

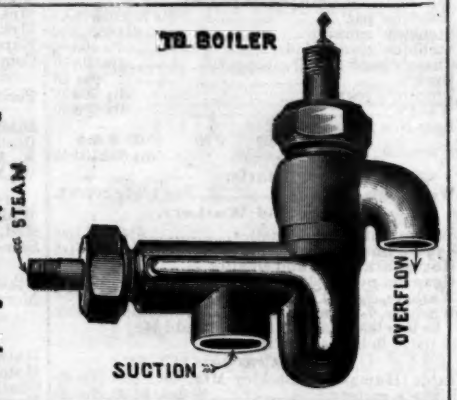
Stationary and Portable Engines.

Send for Catalogue and Price List.

MORSE AUTOMATIC INSPIRATOR CO.

Address all correspondence,

132 Bank Street, Cleveland, O



CRIMPED & CORRUGATED

IRON ROOFING,

SIDING, CEILING, METAL SHINGLES.

W.G.HYNDMAN & CO.

SEND FOR CIRCULAR & PRICES CINCINNATI, O.

THE HOOSIER ROLLER SKATE.

The Latest and Best in the Market.

Light, Simple, Durable, and having every improvement and advantage in use.

MADE OF THE BEST MATERIAL, and satisfaction guaranteed on every pair.

Write for Prices and Circulars.

GAAR, CLAWSON & CO., Richmond, Ind.

Engineers

Don't be Deceived. The Cyclone Steam Flue Cleaner is the only Cleaner made giving steam a spiral motion the entire length of the tubes.

Crescent Mfg. Co., CLEVELAND, O. [24

WHEELING & LAKE ERIE

TIME TABLE—IN EFFECT JAN. 18, 1886.

Central Standard Time.

EASTWARD.	No. 5.	No. 7.	No. 9.*	No. 1.*
Toledo.....lv	7 45 AM	12 30 PM	5 00 PM	.....
Oak Harbor...ar	8 43	1 22	5 55	.....
Fremont.....	9 07	1 47	6 18	.....
Clyde.....	9 23	2 03	6 33	.....
Bellevue	9 38	2 18	6 47	.....
Monroeville ..lv	9 57	2 32	7 03	1 35 AM
Norwalk	10 13	3 00	7 20	1 50
Wellington	11 03	3 52	9 00	2 32
Creston.....ar	11 52	4 40	10 45 PM	3 15
Orrville.....ar	12 20	5 10	11 45	3 45 *
Orrville.....lv	12 40 PM	5 10	6 00 AM	6 00 AM
Massillon.....ar	1 20	5 50	6 40	.....
Massillon.....lv	1 20	5 50	6 40	.....
Valley June.lv.	2 10	6 50	7 30	7 30
Sherrodsville...	2 40	7 20 PM	8 30	8 30
Canal Dover.....	2 38 PM	.....	8 00	.....
New Comerst'n	3 27	.....	8 47	.....
Cambridge.	4 30	.....	9 45	.....
Macksburg	6 10	.....	11 38	.....
Marietta.....ar	7 20 PM	.....	12 50 PM	.....
WESTWARD.	**No. 6.**	**No. 8.**		
Marietta lv	6 20 AM	2 30 PM	.....	.....
Macksburg	7 25	3 42	.....	.....
Cambridge.	8 54	5 20	.....	.....
New Comerst'n	9 48	6 20	.....	.....
Canal Dover.....	10 28	6 55	**No. 4.**	**No. 2.***
Sherrodsville...	10 15	5 00	6 45 AM	
New Cumberl'd	10 35	5 35	7 00	
Valley June.....	11 15	7 45	7 25	
Massillon.....	12 30 PM	8 35	8 12	
Orrville.....ar	1 10	9 15 *	8 50	
Orrville.....lv	1 25	10 15	8 50	
Creston..... lv	1 57	10 45	9 22	
Wellington	2 45	11 28	10 10	
Norwalk.....	3 35	12 10 AM	11 25	7 25 AM
Monroeville	3 47	12 25 *	11 37	7 37
Bellevue.....	4 04	.....	11 55	7 53
Clyde	4 18	.....	12 10 PM	8 08
Fremont.....	4 35	.....	12 30	8 25
Oak Harbor.....	4 58	.....	12 55	8 48
Toledo.....ar	5 55 PM	.....	1 55 PM	9 45 AM

29.	27.		Norwalk & Huron.		26.	28.
P. M.	A. M.				A. M.	P. M.
6 00	11 45	.....	ar..... Huron..... lv	.....	6 25	2 15
5 47	11 25	.....	...Fries Landing.....	.....	6 38	2 28
5 35	11 10	.....	.....Milan.....	.....	6 52	2 45
5 15	10 45	.....	lv ...Norwalk.....ar	.....	7 15	3 10

* Daily.

M. D. WOODFORD, Gen'l Manager. JAMES M. HALL, Gen'l Pass. Agt. Toledo.

New York, Penn. and Ohio Railroad

N.Y., L.E. & W. R.R. CO. LESSEES.

New York, Boston and the East.

THE SHORTEST AND QUICKEST ROUTE TO PITTSBURGH, WASHINGTON. AND BALTIMORE, AND THE SOUTHEAST.

Change of time goes into effect January 3, 1886.

Central or Ninetieth Meridian time, 33 minutes slower than Cleveland city time.

Until further notice trains will leave from the New Central Depot, South Water Street and Viaduct, as follows:

	Depart.
No. 62. Mahoning Valley Accommo	† 7 00 a m
No. 7., New York Express,.....	* 8 25 a m
No. 72. Fast Pittsburgh Express	* 8 25 a m
No. 64. Fast New York Express.....	* 3 00 p m
No 64. Pittsburgh Express.....	* 3 00 p m
No. 66. Mahoning Valley Accommo	* 4 25 p m
No. 68, New York Express,.....	†11 10 p m
No. 68. Pittsburgh Express.....	†11 10 p m
No. 88, Leavittsburg Local	*12 25 p m
	Arrive.
No. 63, New York Express...	* 6 35 p m
No. 63, Pittsburgh Express, ...	* 6 35 p m
No. 65, Fast New York Express.....	*10 50 a m
No. 67, Pittsburgh Express.....	* 1 30 p m
No. 61, New York Express.....	† 6 10 a m
No. 61, Pittsburgh Express.....	† 6 10 a m
No. 69, Pittsburgh Local Express	†10 40 p m
No. 77. Mahoning Valley Accommo	† 8 00 a m

* Daily. † Daily, except Sunday.

☞This is the only route by which passengers can reach Corry, Elmira, Binghampton, New York City and intermediate points without change. No change to Boston and New England cities.

Baggage checked through to all points East.

Through tickets and information regarding the route can be obtained at office, 224 Bank street, and at New Depot N. Y., P. & O. Railroad, South Water street, and Viaduct, Cleveland.

A. E. CLARK, Ass't Gen'l Pass. Agent, Cleveland, O.

W. M. CLEMENTS, Gen'l Superintendent, Cleveland, O.

M. L. FOUTS, Passenger Agent, 224 Bank Street, Cleveland, O.

UNION

ELECTROTYPE

FOUNDRY

829 SHERIFF ST., CLEVELAND, O

Tobacco Cutters.

Enterprise Mfg. Co. (Champion)..... dis 20&10@30

Transom Lifters.

Wollensak's Patent..... dis 50

Traps.

Game, Newhouse.....dis 35
Wood, mouse.....15c ℔ doz holes
Delusion, mouse.....℔ gross $18 00 dis 15

Twine.	BC.	P.
No. 12, Flax Twine, ¼ and ½ lb Balls	22c	24c
No. 18, " " ¼ and ½ "	20c	22c
No. 36, " " ¼ and ½ "	19c	21c
No. 264, Mattrass ¼ and ½ "		50c
Chalk Line, Cotton, ½ lb Balls		28c
Mason Line, Linen, ½ "		60c
2-Ply Hemp, ¼ and ½ lb Balls (Spring Twine)		14½
3-Ply " 1 lb Balls		15c
3-Ply " 1½ lb Balls		13c
Cotton Wrapping, 5 Balls to lb		14@20c

Vises.

Solid box.....50 &10@60
Parker's.....discount 20@25
Prentiss....." 25@25 &5
Stephen's.....25
Saw Filers, Wentworth's.....dis20&10
Saw filers, Stearn's.....dis 40

Washer Cutters.

Smith's Patent.....℔ doz $12 00, dis 20&10&10
Johnson's.....℔ doz $11 00, dis 33⅓
Penny's.....℔ doz Pol. $14 00; Jap'd. $16 00, dis 55
Appleton's.....℔ doz $16 00, dis 60&10
Bonney's.....dis 30&10

Well Wheels.

8 in., $1.85; 10 in., $2.15; 12 in., $2.90

Wire.	New List Jan.18,1884
Brass and Copper	discount 33⅓@30&10
Bright and annealed, Nos. 0 @ 18	dis 70
" " Nos. 19 @ 26	dis 67½
" " Nos. 27 @ 36	dis 72½
Coppered Nos. 0 to 18, market list	dis 65 & 5
Galvanized Nos. 0 to 18, market list	dis 60&5
Tinned market No. 0@18	dis 60&5
Cast steel	dis 50
Tinned Broom Wire	dis 60
Annealed Fence, Nos. 8 and 9	dis65
Annealed Grape, Nos. 10 to 14	dis 65
Fence Staples	℔ lb 3½
Fence Staples, galvanized	℔ lb 4½
Stubs Steel Wire regular	$6 00.@lb dis 30
Barb Wire, galvanized	℔ lb 4⅞@5

Wrenches.

Coe's genuine, cash in 10 days.....60 & 3
Girard Standard.....discount 70@70&5
Agricultural.....discount 80@80&5
Mechanics'.....dis 60&10 & 3
American adjustable.....dis 45
Coes' pattern, malleable.....dis 80& 5
Coes' pattern, wrought.....dis 80@80&5

Wringers.	Per doz
No. 2½ Universal	$27 00
No 2 Universal	30 00
Novelty for Common Tubs, No. 2, 10-inch	$27.00
Novelty, for Common Tubs, No. 3, 11-inch	31.50
Excelsior, with Folding Bench, No. A, 10-in.	45.00
Excelsior, with Folding Bench, No. B, 11-in.	49.50
Peerless No. 2½	27.00
Peerless No. 3½	31 50

dis 5@10 ℔ cent

TINNERS' STOCK.

Tin.

Banca.....per lb.23½
Straits....." 21¼@21¾c
English.....21¾@22
Bar.....22@22½

Spelter.

American, cash, ℔ lb.....4⅝@5c
Bergenport.....9c

Charcoal Tin Plate.

IC 12x12 225 sheets.....$5 25@7 50
IX 14x20 112 sheets.....6 25@9 25
DC 12½x17 100 sheets.....5 00@5 50
DX 12½x17.....6 25@7 00
IC 10x14 225 sheets.....℔ box 5 00@7 50
IC 20x28 112 sheets.....10 25@15 25
IX 10x14 225 sheets.....6 25@9 25
IX 12x12 225 sheets.....6 25@9 50
For each additional X add $1 25@$2 00.

Coke Tin Plate.

	Best	Ordinary
IC 10x14 } IC 14x20 }	$4 75	$4 65@—
IC 12x12	4 87½	4 75@—
IC 10x10 (Gutters 225 sheets)	8 00	—@7.25
IC 20x28 (112 sheets)		10 25

Solder.

Half and Half, in bars warranted.....14¼@14½
No. I, Refined.....11¼@12

Zinc.

Zinc, cask.....5 40@5 50
Zinc, open.....6@6½

LEAD.

Pig.....5¼@5½c
Bar. ℔ lb.....5½@5¾c
Pipe. ℔ lb.....6¾c, discount 20 per cent
Sheet. ℔ lb.....7¾c. discount 20 per cent
Tin-lined pipe.....15c, discount 20 per cent
Block.....40c
Chilled Shot ℔ bag 25 lbs.....1 70

Babbit Metal.

N P U.....℔lb6½@7c
X.....10c
XX.....15c
JB.....20c

COPPER.

Lake Ingot.....12@12¼
Baltimore.....10⅝@10¾
Arizona.....10¾@11c

IRON AND STEEL.

Flat Bar.

1½ to 4 by ⅜ to 1 inch.....1 65
4½ to 6 by ⅜ to 1 inch.....1 75
1¾ to 6 by 1⅛ to 1 inch.....2 05
1¼ &1⅜ by ⅜ to ¾.....1 75
1 &1⅛ by ⅜ to ¾.....1 80
⅝, ¾ and ⅞ by ⅜ to ¾.....2 50

Round and Square.

1 to 1⅞ inch.....1 65
2 to 2⅝.....1 85
2¾ to 3¼ inches.....2 51
3⅜ to 4.....2 65
4¼ to 4½.....3 15
4¾ to 5.....3 35

Oval.

⅞ to 1¼ inch.....2 05
⅝ to ¾.....2 52
½.....2 54
⅜.....2 85

Heavy Band.

1½ to 6 by ¼ and 5-16 inch.....1 99
1 to 1⅜ by ¼ and 5-16 inch.....1 91
¾ to ⅞ by ¼ and 5-16 inch.....2 98
⅝ to ⅞ by ¼ and 5-16 inch.....2 88

Half Oval and Half Round.

1⅛ to 3 inch.....2 75
⅞ to 1¼.....2 35
⅝ to ¾.....2 85
½.....3 15
⅜.....4 65

Light Band.

1⅛ to 6 by ⅛ to 3-16.....2 15

Hoops.

1¼ to 4, Nos. 13 to 15.....2 45
1¼ to 2, Nos. 16 to 18.....2 55
1 and 1⅛, Nos. 13 to 15.....4 05

Sheet Iron.

No. 22 to 24.....2 80
No. 25 to 26.....3 00
No. 27.....3 20
No. 28.....3 40

Steel.

Best Quality Refined Cast Steel—Square, Flat Octagon and Round. Cents.

⅝ to 2 inches, inclusive.....9
1-16 and 2⅛ to 3 inches.....10
¼ and 3¼ to 4 inches.....11
7-32 and 4⅛ to 5 inches.....12
3-16 and 5⅛ to 6 " 14½
5-32 " 18½
⅛ " 25½
Oil well steel forgings.....18½

Machinery Steel.

	Crucible.	Bessemer & open-h'rth.
Ordinary sizes, ⅝ to 2 in. round	4	3
5-16 and 2¼ to 3 in.	5	4
¼ and 3⅛ to 6 in.	6	5
7-32 in.	7	6
3-16 in.	9	8

Square, Flat and Octagon, ½c. extra throughout list.
Cut to specified lengths, ½c. extra.

Hammer Cast Steel.

Cts. ℔ lb.
Crucible cast steel.....5
Open-hearth steel.....4

Sheet Steel.

	Crucible Best.	Crucible 2d. Qual.	Crucible 3d. Qual.	Bessemer & open-h'rth.
To 21 gauge,	9c.	8c.	6c.	5

1c. extra for each additional gauge. Cut to multiples or specified lengths, ½c. extra.

Miscellaneous Cast Steel.

Augur and augur bit.....3
Axle steel for wagons.....3
Frog points and plates.....5½
Frog size bars.....5
Pick, hammered.....5
Skate Steel.....4½
Mattock, beveled.....3
Table cutlery.....3½
Table Cutlery, beveled.....4
Trap spring steel.....6
Pike and cant hook.....7
Coal and granite wedge.....7
Roller.....5½
Spindle, subject to machinery classification.....5½
Trap spring steel.....6
Forged crank pins and lathe spindles.....7½
Piston rods, plain.....4
Piston rods, forged to shapes.....7½
Slide bars, plain.....5
Slide bars, forged to shapes.....7½

Open Hearth or Bessemer.

Boiler fire-box and flue sheets not less than 3-16 thick.....4c
Boiler, fire-box and flue sheets not less than ⅛ thick.....5c
Circulars and semi-circulars, when ordered separately.....6c
Smoke stack, to shape.....5c
Locomotive tank steel.....4c

File Cast Steel.

Square, round, half round and flat bastard, 8-inch and over.....
Mill saw, 8-inch and over.....5c
Taper, 3½-inch and over.....6c
Horse and shoe rasp.....5c

Spring Cast Steel.

Spiral, taper, cut to lengths.....4c
Spiral, taper, cut to lengths.....5½c

Tire Cast Steel.

1x¼ and over.....6½c
1x3-16 ⅞x3-16 and ¼.....7c
1 and 13-16x⅛ and 5-32, ¾x3-16 and 5-32.....9c
¾ and ⅝x⅛ and 3-32 and 12g.....10c
Solid safe cast steel.....4c
Three and five ply cast steel.....5c

Agricultural Implement Cast Steel.

Fork and rake, crucible.....4¼
Horse rake steel, cut to lengths, crucible.....5
Hoe, crucible.....5
Corn stalk cutter, beveled.....4½
Beveled hoe and shovel steel, in bars.....4½
Crucible plow steel, in slabs.....4½

Bessemer and Open-hearth.

Spring.....3 c
Spring spiral and taper, cut to lengths.....3½
Tire, 2-16 thick and above.....2½c
Toe calk.....3 c
Plow.....2½c
Axle billets.....2 c
Sleigh shoes.....2½c
Cutter shoe, cut to length and tapered.....3c
Scythe back steel.....3½c
Grain drill bars.....2½c
Grain drill points.....3½c
Rolling coulter blanks, cut and punched.....6c
Thresher Teeth.....3½
Rolled hammer billets.....2½c
Thresher steel.....2½c

Terms.—Four months 3 per cent. discount for cash, if remitted within 30 days.

Rolls and Castings.

Furnace floor and straightening plates.....1¼c
Housings and castings not otherwise specified 1¾c
Guide plates.....2½c
Spindles and coupling boxes.....1¾c
Sand rolls and pinions, large size.....2 c
Sand rolls and pinions, small size.....2½c
Pipe mill castings.....3 c
Rolling mill castings under 50lb.....2 c
Spur and bevel wheels, large.....3 c
Spur and bevel wheels, small.....3½c
Pulleys up to 30 inches.....4 c
Pulleys over 30 inches.....3½c
Engine castings, light.....3¼c
Engine castings, heavy.....2¾c

English Steel.

Best cast.....℔ lb15c
Extra cast.....16½@17c
Round machinery.....10c
Circular Saw Plates.....14c
Swaged, cast.....16c
Best double shear.....15c
Blister, 1st quality.....14c
German steel, best.....10c
2d quality.....9c
3rd quality.....8c
Sheet cast steel, 1st quality.....15½c

Boiler Rivets.—"Albany."

¼, ⅜, 11-16 and ⅝ inches diameter.....4 00
"Standard" ¼, ⅜, 11-16 and ⅝ inch diam.....4 00

Plumbers,' Steam and Gas Fitters' Supplies.

Grey Iron Fittings.....discount 70
Steam Brass Goods.....discount 65
Water Brass Goods.....discount 60
Galvin Gate Valves.....discount 40
Register Gauge Cocks.....net 50
Steam Gauges.....discount 40
Steam Gauges 5 inches net dial per doz 24 00
Scotch Glass Tubes.....discount 75
Tools.....Special
Soil Pipe & Fittings, Mott's List.....discount 50
Sinks, Mott's list.....discount 35

PIPE, WROUGHT.

Standard Wrought Iron Lap Welded Steam and Gas Pipe.

	Inside Diameter. Inches.	Weight Per Foot.	Price Per Foot Black.	Price Per Foot Galvan'd	Thickness Inches.
Butt-Welded.	⅛	24	0 03¼		.068
	¼	42	0 03¾	0 05	.088
	⅜	56	0 03¾	0 05½	.091
	½	84	0 04¾	0 06	.109
	¾	1 12	0 06	0 08	.113
	1	1 67	0 08	0 10½	.134
	1¼	2 24	0 11	0 14	.140
Lap Welded.	1½	2 68	0 21	0 24	.145
	2	3 61	0 26	0 30	.154
	2½	5 74	0 42	0 47	.204
	3	7 54	0 55	0 62	.217
	3½	9 00	0 67	0 83	.226
	4	10 66	0 83	1 00	.237
	4½	12 24	1 00	1 25	.246
	5	14 50	1 20	1 50	.259
	6	18 76	1 50	2 00	.280
	7	23 27	2 00		.301
	8	28 18	2 75		.322
	9	33 70	3 70		.344
	10	40 06	4 75		.366
	11	45 02	5 75		.375
	12	49 00	6 50		.375
	13	54 00	7 75		.375
	14	58 00	9 00		.375
	15	.....	10 00		.375

Discount, (car load lots) butt-welded ¼ inches to 1¼ inches plain.....45 per cent
Ditto galvanized.....35 per cent
Discounts (car load lots) lap-welded 1½ inches to 15 inches plain.....62½ per cent
Ditto galvanized.....45 per cent
Discounts on less than car lots 2½ per cent. less.
Discounts on pipe cut to specified lengths depends on size and waste, ordinarily 5 per cent lower than random.

Boiler Tubes.

Discount.....55 per cent

SCRAP IRON AND OLD METAL

Per Ton.

No. 1 R. R. wrought scrap.....$19 00
No. 1 wrought scrap.....17 00
No. 1 Machine cast scrap.....12 75
Stove plate (free from burnt iron).....9 75
Grate bars.....8 25
Pipes and flues (Clean).....11 50
Tank iron.....12 25
Hoop and band iron.....8 50
Light sheet iron.....9 50
Axle turnings.....13 50
Wrought turning (free from cast).....12 00
Wrought iron, oily drillings.....11 00
Cast borings.....9 50
Malleable iron.....9 25
Uncut wrought iron boilers.....12 50
Old copper per lb.....9½
No. 1. H. Brass per lb.....9
Heavy yellow brass do.....7½
Light Brass per lb.....6½
Scrap Zinc per lb.....3½
Tea Lead per lb.....3½
Heavy Lead per lb.....3
Rails.....steel $22 00, iron $22 00
Car wheels.....16 25

COAL.

WHOLESALE.

Wholesale f. o. b. cars at Cleveland:

Carbon Hill and Monday Creek.....$2 10@2 25
Massillon.....2 50@2 65
Palmyra, lump.....2 75@2 90
Brier Hill.....2 75@3 00
Pittsburgh.....2 25@2 50
Salineville.....2 00@2 25
Tuscarawas.....2 00@2 25
New Hazelton.....2 00
New Hazelton, mix.....1 15@1 20
" nut.....1 75@1 85
Connotton.....2 00@2 25
Connotton, mix.....1 20
" nut.....1 75@1 85
Anthracite grate.....4 37
Anthracite egg.....4 46
Anthracite stove.....4 87
Anthracite chestnut.....4 69

RETAIL.—Delivered.

Massillon Lump.....3 65
" Nut.....3 40
Carbon Hill and Monday Creek, lump.....3 50
Carbon Hill and Monday Creek, nut.....3 25
Straitsville, lump.....3 40
Straitsville, nut.....3 15
Palmyra Lump.....3 75@4 00
New Hazelton Lump.....2 75
New Hazelton Nut.....2 50
Osnaburg Lump.....2 75
Osnaburg Nut.....2 50
75c less on cars by car load.
Anthracite Stove and Chestnut.....5 75
Egg and grate.....5 50

OILS.

Pure Oils. Packages included.

Sperm, winter bleached per gal.....1 15@1 20
Whale, winter bleached per gal.....60@65
Straits.....37@40
Bank.....35@38
Lard oil, extra W. S.....53@58
do No. 1 do.....45@48
do No. 2 do.....40@43
Tallow oil.....60@65
Neatsfoot oil, pure.....90@$1 00
do No. 1.....65@75
Linseed oil, raw.....46@49
do do boiled.....49@52
Cotton seed oil, white.....47@50
do do yellow.....48@53
West Virginia lubricating 28 deg.....10@16c
Paraffine oil, winter pressed.....15@18
Capitol Cylinder.....35
Model do.....30
Eldorado Engine.....23
Turpentine, per gal.....58
Leader Cylinder.....70

The Picturesque Lehigh Valley Route.

Three through trains with Pullman cars attached are now run via by this beautiful scenic oute, between Suspension Bridge, Buffalo, New York and Philadelphia, leaving Suspension Bridge 8:18 A. M. 4:10 and 7:45 P. M., Buffalo 9:00 A. M. and 4:40 and 10:00 P. M., connecting with all trains from the West.

Passengers between the East and West passing over the famed LEHIGH VALLEY ROAD will experience the pleasure of a trip through the most magnificent and picturesque scenery in the world, presenting an ever varying panorama of delightful surprises.

Double track, steel rails, magnificent road bed and unrivaled equipment, all combine to make the LEHIGH VALLEY the favorite and most desirable route between the East and the West.

Anthracite Coal is used entirely, guaranteeing to passengers perfect freedom from the dense volumes of smoke that so greatly annoy passengers on lines using Bituminous Coal.

E. B. BYINGTON,
Gen'l Pass. Agent, Mauch Chunk, Pa.

Scioto Valley Railway

TIME TABLE.

In effect July 19, 1885.

THE SHORT LINE TO ALL POINTS

North and South, East and Southeast, West and Northwest.

TRAINS GOING SOUTH.

STATIONS.	No. 2.	No. 4.	No. 6.
Columbus.....Lv	6 25 a.m	11 45 a.m	5 30 p.m
Valley Crossing...	6 48 "	12 08 p.m	5 52 "
Lockbourne	7 00 "	12 20 "	6 06 "
Ashville	7 15 "	12 36 "	6 24 "
Circleville	7 45 "	1 05 "	6 50 "
Kingston	8 08 "	1 32 "	7 13 "
Chillicothe	8 40 "	2 05 "	7 55 "
Sharon	9 22 "	2 47 "	8 43 "
Waverly	9 32 "	2 57 "	8 54 "
Piketon	9 45 "	3 11 "	9 08 "
Big Run	10 08 "	8 28 "	9 25 "
Lucasville	10 25 "	3 46 "	9 45 "
Portsmouth	10 50 "	4 10 "	10 10 "
Sciotoville	11 08 "	4 28 "	10 27 "
Wheelersburg	11 15 "	4 34 "	10 35 "
Haverhill	11 38 "	4 54 "	10 55 "
Hanging Rock	11 50 "	5 05 "	11 05 "
Ironton	12 02 p.m	5 17 "	11 17 "
Petersburg	12 15 "	5 30 "	11 30 "
Ashland.....Ar	12 50 p m	6 05 p.m	12 05 a.m

Trains Nos. 2 and 4 daily, except Sunday.
Train No. 6 daily.
Train No. 6 takes supper at Chillicothe.

TRAINS GOING NORTH.

STATIONS.	No. 1.	No. 3.	No. 5.
Ashland.....Lv	2 20 a.m	7 30 a.m	4 55 p.m
Petersburg	2 55 "	8 05 "	5 30 "
Ironton	3 08 "	8 18 "	5 43 "
Hanging Rock	3 20 "	8 30 "	5 55 "
Haverhill	3 31 "	8 41 "	6 06 "
Wheelersburg	3 50 "	9 03 "	6 26 "
Sciotoville	3 56 "	9 10 "	6 31 "
Portsmouth	4 10 "	9 25 "	6 45 "
Lucasville	4 34 "	9 50 "	7 12 "
Big Run	4 51 "	10 08 "	7 31 "
Piketon	5 07 "	10 23 "	7 48 "
Waverly	5 21 "	10 36 "	8 03 "
Sharon	5 32 "	10 47 "	8 15 "
Chillicothe	6 35 "	11 55 "	9 00 "
Kingston	7 04 "	12 22 p.m	9 27 "
Circleville	7 27 "	12 47 "	9 50 "
Ashville	7 55 "	1 12 "	10 13 "
Lockbourne	8 14 "	1 29 "	10 29 "
Valley Crossing...	8 26 "	1 43 "	10 43 "
Columbus.....Ar	8 50 a.m	2 05 p.m	11 05 p.m

Train No. 1 daily.
Trains Nos. 3 and 5 daily, except Sunday.

COUPON TICKETS, by the best routes and to all principal points in the United States and Canada, can be found at the following Stations: Columbus, Circleville, Kingston, Chillicothe, Waverly, Portsmouth, Ironton, A. C. & I. Jc., Ashland.

For further information relative to rates, connections and through time, call on your Ticket Agent, or address J. ROBINSON,
JNO. J. ARCHER, Receiver.
Gen'l Pass. & Ticket Ag't, Columbus, Ohio.

The New York, Chicago & St. Louis

RAILWAY COMPANY.

The Passenger Equipment of this New Trunk Line is all new and is supplied with the latest appliances necessary to safe, speedy and comfortable travel.

Trains depart from and arrive at Union Railway Depot, Van Buren street, Chicago, and N. Y., L. E. & W. Railway Depot at Buffalo.

Following is time in effect March 22, 1885, and until further notice:

.....	7 50 a.m	Chicago	p.m.	7 50	.....
.....	9 50	Valparaiso	.....	5 42	.....
.....	1 50 p.m	Fort Wayne	.....	2 10	.....
.....	2 05	New Haven	.....	1 35	.....
.....	3 48	Leipsic	a.m	11 36	.....
a.m.	4 46	Arcadia		10 35	p.m.
6 50	5 00	Fostoria		10 22	8 50
7 35	5 45	Green Springs		9 45	8 05
8 15	6 20	Bellevue		9 20	7 40
10 45	9 02	Ar...Cleveland	...Lv	6 45	4 51
11 55	.....	Painesville		.....	3 34
12 44 p.m		Ashtabula		.....	2 42
1 14	.....	Conneaut		.....	2 13
2 33	.....	Erie		.....	12 50
4 09	.....	Dunkirk		a.m.	11 16
5 45	.....	Ar....Buffalo	...Lv.	.....	9 40

Rocky River Accommodation.—Depart, 7:45 a.m.; 1:35 p.m.

Euclid Accommodation.—Depart, 6:24 a. m.; 9:10 a.m.; 5:05 p.m.

All trains daily, except Sunday.

Through Tickets to all points are on sale at principal offices of the Company at lowest rates for any class of tickets desired. Baggage checked to destination.

B. F. HORNER,
General Passenger Agent

LEWIS WILLIAMS,
General Manager, Cleveland, O.

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MANUFACTURERS OF THE

MAGNIFICENT

Base Burner

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FOR HARD COAL.

Faultless in Construction and Operation.

Also Manufacturers of an

ENDLESS VARIETY OF POPULAR

AND FAST SELLING

Ranges, Cooking and Heating Stoves,

Suited to all Localities and for every kind of Fuel.

Full Catalogue and Price List on application.

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26 to 36 SUPERIOR STREET, (under Viaduct) CLEVELAND, OHIO.

Branch Houses: 90 to 100 Erie Street, Chicago, Ill. Corner 11th and Herbert Streets, St. Louis, Mo. 133 South Meridian Street, Indianapolis, Ind.

Foundries:

CLEVELAND, O. CHICAGO, ILL. ST. LOUIS, MO.

The Norwalk Engines

And Boilers.

In Sizes from 4 to 60 H.P.

These engines cannot be surpassed for

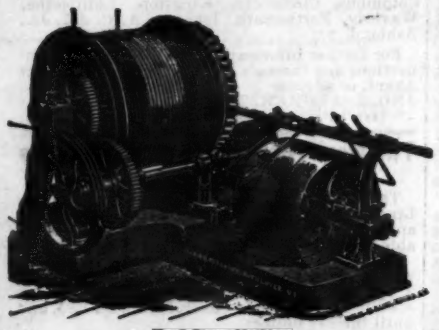
Simplicity of Construction

Nor Perfection of Workmanship.

The smaller sizes are especially designed for running light machinery, such as Printing Presses, Cheese Factories, Wood Sawing Machines, Meat Choppers, &c.

Norwalk Machine Works,

61 Norwalk, O.



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IRON CLAD PAINT is the most durable, most fireproof, and Cheapest Paint made.

FURNISHED both Dry and Ground in Oil.

Used by Nearly all the Railroads. 63

BUCKEYE MALLEABLE IRON WORKS.

MUNSON, HAYDEN & CO.,

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Refined Air Furnace Malleable Iron Castings of all kinds, Wire Dies, etc. Estimates furnished. Correspondence solicited.

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BOILER MAKERS,

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Shafts, Pulleys and Hangers a Specialty.

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22"x22"x5' Planer.

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IRON AND BRASS WORKING MACHINERY.

CATALOGUES SENT ON APPLICATION.

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— MANUFACTURERS OF —

UPRIGHT & HORIZONTAL STATIONARY Engines,

Either High or Low Speed;

Geared and Direct Attachment Circular Saw-Mills.

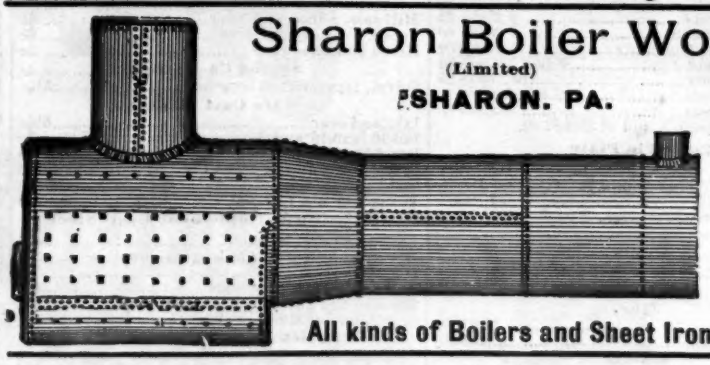
DEALERS in all ENGINE and SAW MILL SUPPLIES.

Freeman's Portable Fire Escape for Traveling Men.

Sharon Boiler Works,

(Limited)

SHARON, PA.



All kinds of Boilers and Sheet Iron work.

Installment Bonds,

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They protect against adversity in business.

They are a protection for Life Insurance Policies.

They are an investment and a protection combined.

They are better than U. S. Governments, and equally as secure.

They protect dependent ones against the contingency of death.

They are a safe, sure and desirable investment, and within the reach of all.

They guarantee that a certain amount of money with interest, will be accumulated in a specified time.

The amount that life insurance would cost should be credited as a profit on the Bond, as it takes the place of such insurance.

The Installments paid are like deposits in a savings bank, and are returned to the bondholder at his option.

The Bond matures at a specified time, or at previous death, for its FACE VALUE, and guarantees a definite sum in cash any year after the first.

The Installments paid on the Bond can be used in business by hypothecating it. This is a great advantage to those who may, at any time, need all the money they can command or raise.

The Company, should the purchaser be unable to pay the Installments coming due, will advance the amount desired and continue the Bond in force.

The 800,000 policies representing over two billions of dollars of lapsed or surrendered insurance between 1870 and 1880, would have been saved by these Bonds.

The Bond is not hampered by any conditions or restrictions, and its cash value cannot be impaired or jeopardized.

The Bond affords the very best security, and is negotiable the same as any other bond or stock.

UNDER THIS BOND YOU "PAY AS YOU GO, STOP WITHOUT LOSS, STOP WITH PROFIT, OR CONTINUE FOR GREATER PROFITS."

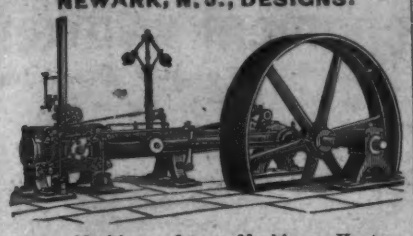
FOR SALE BY **Olmsted Bros.,**

86 SUPERIOR STREET CLEVELAND, O.

W. G. Atkin, Special Agt.

Cleveland Corliss Engine,

NEWARK, N. J., DESIGNS.



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PATENT NO. 316,816,

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Giving lights of 1,200, 2,000, 3,000, 4,000 and up to 100,000 candle-power. Our No. 8 Machine gives 65 lights of 2,000 candle-power with about 45 horse-power.

OVER TWENTY DIFFERENT STYLES OF ARC LAMPS.
For indoor and outdoor use, and for tower lighting.

Machines for Incandescent Lighting,

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Our storage batteries are the only practical ones offered in the market. They are especially adapted for situations where lights are needed for only four or five hours per day, and where it is convenient to use power during the day to store up the current. There are thousands of such places where our storage battery must eventually be used.

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Our carbons are the purest and best made. We have the largest and most fully equipped carbon factory in the world, and our prices are very low.

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We have commenced the manufacture of the Brush Electric Motors, and shall soon be prepared to fill orders for all sizes, from one up to forty horse-power. In many locations these are the most economical producers of power, and will be largely used by Lighting Companies and others where small powers are required.

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Galvanizing in all its branches. Specialty of WIRE MESH and Fine Work. 21

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AT NILES BOILER WORKS.

1 NEW SLIDE VALVE 12"x18" ENGINE with Governor, Pulley, Fly Wheel and Fittings, complete. Price $500.00
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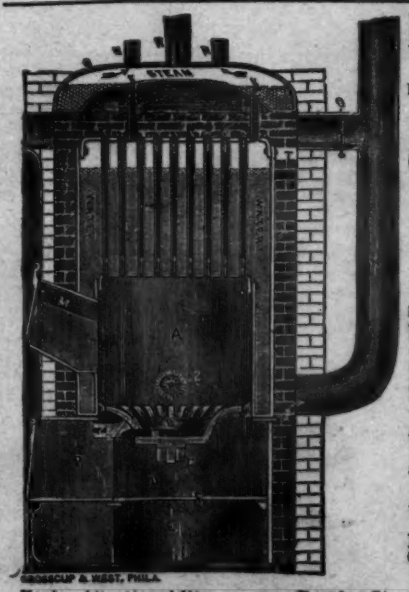

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Contractors for the heating and ventilation of Public and Private Buildings.

The Grinnell Sensitive Automatic Fire Extinguisher
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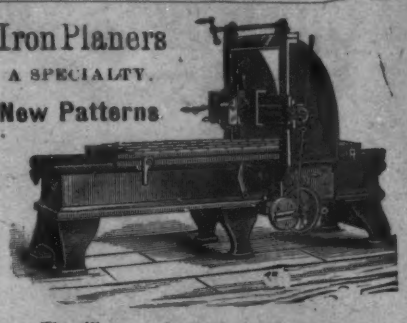
A SPECIALTY.

New Patterns



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Sizes from 20 in. by 20 in. and 30 in. by 30 in. to plane from 4 to 10 feet in length.

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SAFETY WINDOW SASH LOCKS.

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These Locks have all advantages which are desirable in a Window Sash Lock. They render the window sash adjustable at any point; they lock the sash firmly there; they prevent the sash from rattling; they take the place of a weather strip; they are cheap, simple, durable, can be used on old and new windows, with or without weights; they are rapidly gaining the public favor, wherever introduced. Circulars and price-list free. Sample lock by mail, 10 cents. Address CHAMPION SAFETY LOCK & NOVELTY CO.
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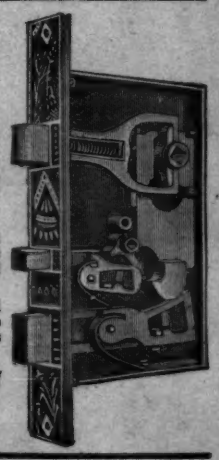
Non-Pickable Door Locks.



Cost no more than ordinary locks. Turning the thumb-knob closes key-hole and fastens both knob and latch, and no key can be inserted from the outside.

We also make

Two Bolt Locks and Latches, on same principle, with full Trimmings.

Send for Illustrated Catalogue. Sample locks sent to architects on request.

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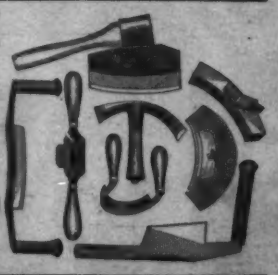

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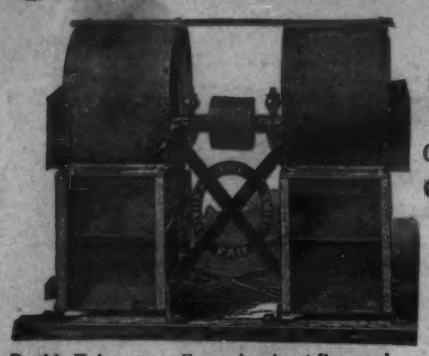
149 & 151 Seneca-st [12] CLEVELAND, O.

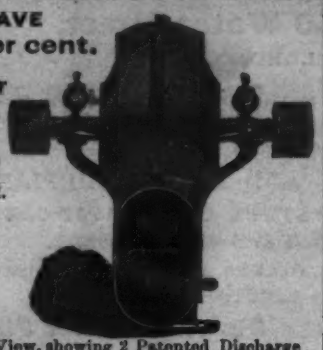
Smith Blowers & Exhaust Fans



Double Exhauster.—Front showing 4 Patented Discharge Openings, where others have only 2.

SAVE 50 per cent. Power

Most Compact, Cheapest.



Front View, showing 2 Patented Discharge Openings, where all others have only 1.

The Fans are specially adapted for REMOVING SHAVINGS and DUST from **Planing Mill Machinery** and other wood-working establishments, DUST from EMERY and other Polishing Wheels, Grindstones and Cleaning Mills; Smoke and Gas from Machine Shops, Steam from Dyeing Establie Ventilating Buildings, Tunnels and Mines; removing Bark and Dust from Mills and Tann **Cupola and Pressure Blowers** are especially adapted to Cupola Furnaces and Forges, and all places where a strong blast is required. Every machine tested before shipping, and fully warranted.

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AUTOMATIC AND PLAIN

Engines, 10 to 150 Horse Power.

HARMON, GIBBS & CO., CORRY, PA.

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Manufacturers of Wire Cloth,

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Patterns and Models of Wood and Metal

LIGHT MANUFACTURING.

With our new and improved facilities we are prepared to make very low estimates in this line.

Pin Bearings for Roller Skates. TRADE SUPPLIED.

D. S. HITCHCOCK & CO., Crossing C. & P. & N. Y. C. & St. L. R. R., CLEVELAND, O. 63-6m

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(Protected by U. S. Patents.)

AN INDESTRUCTIBLE MATERIAL.

The Best and Cheapest Material known for

INSULATION OF HEAT. PROTECTION AGAINST FROST.
PREVENTION OF SPREAD OF FIRE.
FREEDOM FROM RATS, MICE AND INSECTS. DEADENING OF SOUND.

Used in buildings. It keeps the **Temperature uniform**, SAVES largely in the **Expense of heating**; renders the walls and floors EXEMPT from the **conducting of sound**. Completely **non-combustible**, it is very valuable for FIRE-PROOFING.

As a NON-CONDUCTING COVERING for Steam Pipes, Boilers, Drums, Hot Air and Blast Pipes, and all heated surfaces, and as a protection against Frost for Water Pipes, **Mineral Wool** is invaluable. OVER TEN MILLION POUNDS IN USE.

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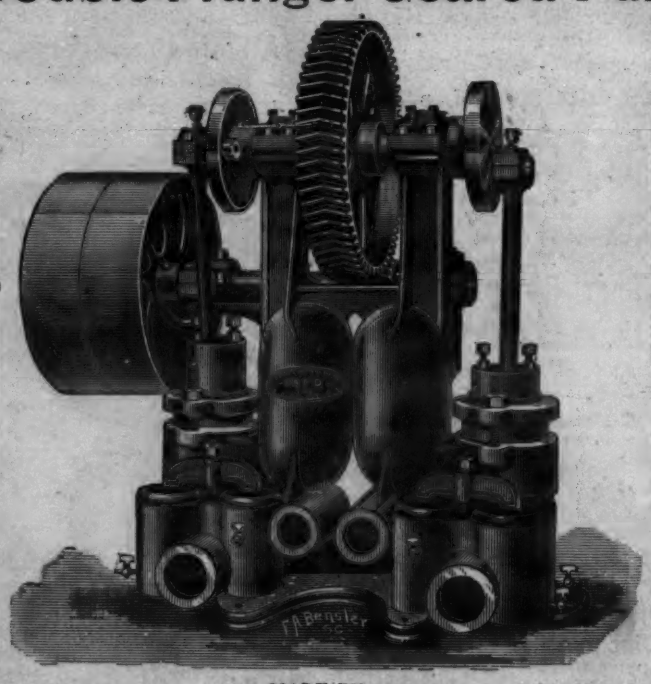
It can be used as a DOUBLE PUMP or as two Separate SINGLE PUMPS for different purposes. Parts Interchangeable.



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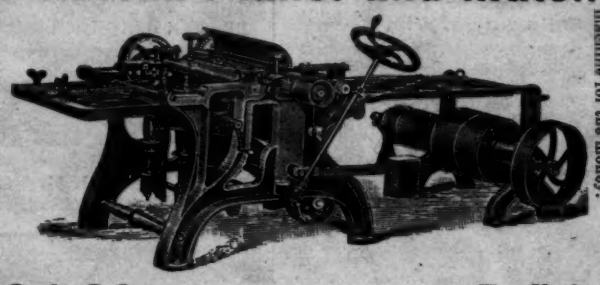

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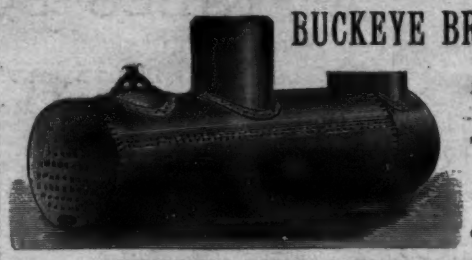

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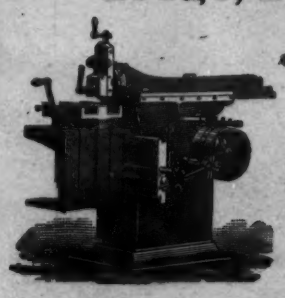
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